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The Index Person—Relation to Incidence Rates in Family Studies*

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MUCH of the information available regarding the communicability of various diseases and the conditions related to exposure, susceptibility, and immunity is derived from observation of their spread or failure to spread in attacked families. Most studies of disease within family or household groups have been presented, however, in an incomplete form, so that the published data are unsatisfactory for comparative purposes and are difficult to interpret. The correction of these defects is not always a simple matter, for the use of family units as a basis for study introduces unexpected complications, and these complications are not the same for acute as for chronic diseases.

The systematic study of the acute communicable diseases, using the family or household as a unit, has been due largely to the work of the late Charles V. Chapin [1] and his development of the so-called "secondary attack rate" to measure the risk of persons exposed to a disease in another member of the same household. The secondary attack rate can be compared with the incidence in the general population to show the increased risk resulting from familial exposure. In calculating secondary attack rates, the primary cases which introduce the disease into the attacked families are excluded from the tabulations because they do not belong to the same universe of study as do their household associates. The universe of study to which the primary cases belong is the general population, whereas the familial associates comprise a universe in themselves, since they represent all persons living in familial contact with the primary case.

The use of secondary attack rates cannot readily be carried over into studies of chronic disease to measure the risk within attacked families. For one thing, it is impossible in most instances to denominate the primary case

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who must be responsible for the introduction of the disease into the family. Attempts to use the "earliest known case" as the primary case, and calculate secondary attack rates on this basis, give a pseudo secondary attack rate which is too high to represent the risk within exposed families, for reasons which will be discussed later.

Another difference between the study of acute and chronic disease is that, in the chronic diseases, the period of peculiar risk within attacked families is not confined to a few weeks, as in the acute conditions, but instead extends over a period of years. Because it is difficult to keep a sufficiently large group of people under systematic observation for a long period of time, most studies of chronic disease within family groups have been of a *retrospective* nature, and rely upon such simple facts as may be expected to lie within the memory of the average householder.

These difficulties have so far defied all attempts to calculate secondary attack rates in chronic disease studies, but they do not prevent the calculation of incidence rates for these families, provided the analysis of the family experience is linked with the time of onset of the disease in the person responsible for the selection of the family, *i.e.*, the index person.* Such rates must of course accommodate for time by using some form of modified life table procedure and expressing the population at risk in person-years of experience.[2, 3] These rates, while not secondary attack rates, are true incidence rates, and can be compared with the incidence in the general population. It is thus possible to measure the risk in these families and its relation to that in the population proper for the period subsequent to the onset of the disease in the index person and, in certain cases, for the period prior to this onset. Such rates are meaningful, are readily interpreted, and are of distinct value in the study of chronic disease.

Although the late Dr. Wade Hampton Frost is largely responsible for the introduction of the use of these rates to measure the risk in attacked families, he had published no report on the subject at the time of his death. The purpose of this article is to repair this deficiency and to consider in broad terms the determination of incidence rates in family studies in relation to the bias introduced by the index person.

DEFINITION OF TERMS

The term "family" is used to refer to the group of individuals who dwell together as a household under one roof. That is to say, a family is composed of a group of people, usually of close kinship, who are living in intimate contact with each other and who share a common environment. It is, as a rule, a readily delineated group, and is a unit which can without great difficulty be kept under observation. The terms "family" and "household" are used synonymously throughout the discussion.

The "index person" is defined as that member of the family responsible for its inclusion in the study. Whenever the household is used as the unit of study, there must be an index person in each family, although this fact is not at first apparent. In most instances the families are selected for study because a specific event, such as attack with a disease, is known to have occurred in some one member of the household. This person is denominated the index person because, although not necessarily the first member of the family in whom the event has occurred, he is the first member of the family to come to the attention of the investigator. If the event is a reportable disease, the terms

* The term "index person" is used in preference to the term "index case" in common use because the word "case" carries certain implications not always fulfilled by the index person. The index person is sometimes referred to by geneticists as the "proband."

"index person" and "first case reported from the family" are synonymous. In other instances, where no attempt has been made to select families because of a specific occurrence to one of its members, and all families within an area are studied, it would appear that there would be no index person because no conscious selection of families is made. Even in such cases, if the study is a dynamic one, there is an implicit selection of families due to the person responsible for the maintenance of the family as a unit. Through this responsibility, this individual acts as the index person. This concept will be discussed in some detail later.

The term "population at risk" is used to describe the particular group of individuals (the universe) in which each is liable to the event in question. In calculating the usual annual mortality and morbidity rates, the population at risk is defined as the mean population under consideration during the year of observation. In family studies dealing with chronic disease, the population at risk is usually expressed in person-years* of observation, when an annual rate is desired.

The term "incidence rate" expressed for a specific unit of time refers to the rate derived from the application of the formula

$$\text{Incidence rate (X)} = \frac{\text{Number of events in the population at risk in the specified time}}{\text{Mean population at risk of event during specified time}} \quad (1)$$

In this formula the event may be death, contraction of a disease, or any other defined occurrence. The rate may refer to the number of events in 1 week, 1 year, 10 years, etc., depending upon the time specified. In the study of chronic disease it is more usual to derive the incidence rate from the formula:

$$X = \frac{\text{Number of events in population at risk during observation}}{\text{Person-time units of risk during observation}} \quad (2)$$

This formula is the equivalent of formula (1), but its expression shows more clearly that allowance is made for variation in the length of observation for different individuals. A person-time unit of risk may be 1 person at risk for 1 year, 1 week, 1 month, etc., depending upon the time unit selected. In the following discussion of incidence rates, the time unit will be selected as a year, merely for the sake of concreteness, but the discussion applies equally well to rates based on any other specified unit.

ANALYSIS OF INCIDENCE RATES DERIVED FROM FAMILY STUDIES

In setting up for families incidence rates which are comparable to those for the general population, it is necessary to consider how the event for which the families were selected is related to the event for which the incidence rate is set up. A formula for calculating incidence rates including all members of the family may be expressed

$$X = \frac{\text{Number of events in members of the family during observation}}{\text{Person-years of risk in members of family during observation}} \quad (3)$$

Such a rate is comparable with that in the general population only if, for the event in question, all members belong to the same universe of study. The pertinent question, then, is how the index person, who brought the rest of the family into the study, came into the study himself. If his selection was related to the event under study, while that of the rest of the family was not, then all members of the family do not belong to the same universe of discussion. This point can be illustrated by considering the various relationships which can exist between the event which caused selection of the index person and the event which is being studied, and

* One person-year means 1 individual observed for 1 year, or its equivalent.

these will be discussed in four different classes.

I. *Families chosen because the event being studied has occurred in the index person—*

The great majority of family studies of disease are of this type. They are set up to study the further occurrence of a disease in households where it is already present, households being chosen in which at least one member is known to be suffering from the disease. The individual thus responsible for the inclusion of the family is the index person, and he may be one of a series of reported cases or of admissions to a hospital or clinic. The selection of the index person involves, therefore, his having the disease which is to be studied, and his coming to the attention of the investigator through clinic attendance or other case discovery mechanism. The index person is not selected because he is a member of the family; rather, the family is selected because of its association with the index person. The individuals in the family group, therefore, may be broken into two distinct classes, (a) the index persons, and (b) their familial associates, and we may consider these two classes as they relate to incidence rates.

(a) *Index persons*—Since in the present class of problem, all index persons *must* by definition have the event under consideration, they are 100 per cent attacked. If they are included in the calculation of incidence rates, they must all appear in the numerator of the rate. These persons do not come from the universe of the family group but, instead, from a broader and much less definite universe. For instance, where index persons are selected because of attendance at a clinic, the universe from which they are drawn may be defined as "all persons who, if they had developed the disease, would have come to that particular clinic." This is an unmeasurable universe, since there is no method of knowing what individuals (who did not develop the disease) would have come to the clinic if they had been attacked. Where index persons are an entire group of legally reported cases of a disease, the universe is measurable, and may be taken to be the entire population of the area. In no case, however, can it be considered as being the family group.

(b) *Familial associates of index persons*—These individuals are selected because they share a common environment with the index persons. They comprise a complete universe in themselves and, in addition, are selected without prior knowledge of the occurrence of the disease among them.

With the family membership separated into these two classes, we may inquire into the justification of combining them into formula (3), which calls for dividing all the cases in both index persons and their associates by the combined person-years of risk in the two groups. Since the justification for setting up the combined rate depends upon the two groups coming from the same universe of discussion, we shall examine the two groups for this issue.

If we consider the contribution of the familial associates of the index persons (group b) to the whole experience, we may set up the ratio

$$\frac{\text{Number of events in associates during observation}}{\text{Person-years of risk of associates during observation}} \quad (4)$$

This is a true incidence rate because the denominator forms a complete universe and the numerator contains all the events which occurred within it. The group was not selected for the presence of the disease, but merely for the association with the index person, and the incidence rate may be compared with that of the general population to see the effect of this association.

On the other hand, the contribution

of the index persons (group a) to the total family experience is of different character. Setting up a similar ratio for their contribution, we have as stated earlier all the index persons in the numerator, since they were selected because they were known cases. The ratio is then

$$\frac{\text{Number of index persons}}{\text{Person-years of risk of index persons during observation}} \quad (5)$$

The denominator of this ratio needs some clarification. Since the index person had already been attacked when selected for study, the observation period is a retrospective one, and dates from his entrance into the family unit. Formula (5) therefore divides the number of index persons by their total years of experience from entrance into the family until attack. This expression is then merely the proportion of these known attacks which occurred per year. It is obvious that the denominator does not include the universe at risk of becoming an index person, and hence the ratio is not an incidence rate at all.

We note, therefore, that where families are chosen because the event being studied has occurred in the index person, the members of these families must be considered as having come from two distinct universes with respect to this event. The type of data obtainable for index persons is not comparable to that for their associates, and hence the two cannot with justification be lumped together. If these data, which yield "proportion of known attacks occurring per year," *and* "proportion of persons at risk attacked per year" (*i.e.*, incidence rate) be combined, the resulting conglomeration cannot possibly be interpreted.

We have stated that from the experience of the familial associates of the index person we can set up a true incidence rate, and it is of interest to know how this rate in chronic disease compares with the usual secondary attack rate in acute disease. It is apparent that the two rates are very similar, since in both instances they are calculated from the experience of familial associates of known cases. However, it must be remembered that the index person may not be the same as the primary case, since he is not necessarily the first person attacked.

It might appear possible to secure secondary attack rates in chronic disease studies by substituting "earliest known case" for "primary case" and dealing with the experience of the familial associates of this case rather than with those of the index person. Where, however, families are selected because of the occurrence of disease in the index person, they usually have a larger proportion of multiple cases than would be found in all families in which the disease occurs. This is due to the fact that the probability of there being an index person in the family, that is, the probability of there being a discovered case, increases as the number of cases in the family increases. Hence, there is a tendency to select for study, families having two or more cases and to fail to include a sufficient number of families with only one case. The families in the study may not be representative, therefore, with respect to the occurrence of cases subsequent to the earliest known case, and any pseudo secondary attack rate calculated tends to be too high to serve as a measure of the risk. Since the proportion of primary cases which become index cases is usually unknown, and in all probability varies in different studies, no correction is possible and hence no reliable measure of risk can be obtained on this basis.

Reliable measures of the occurrence of chronic diseases can, however, be obtained by comparing the incidence of a disease among the family associates of index persons after the onset of the index case, with that in the general

population. In studies where there is no bias tending to make the index person the first case in the family, rates may be set up to compare the experience of the family associates prior to and subsequent to onset of the index case. In making such analyses, the index person is not a part of the universe of study, and should be excluded from the tabulations.

II. *Families chosen because the event being studied is related to an event which has occurred in the index person—*

This situation involves the same logical issue as that discussed above. The difference in the two classes of problem is one of degree only, for in this case the event being studied has not necessarily occurred in the index person, but it is related to the event for which he is selected. Thus, the members of the family belong to two distinct universes, since the risk of the event for the index person, although not certain as before, is different from that for his familial associates. This case is illustrated by studies of the mortality from tuberculosis in families in which the index person is known to be suffering from the disease. Here the event being studied is death, and the event which has occurred in the index person is the development of tuberculosis. In analyzing formula (3) for the inclusion of all members of the family, we find that the contribution of the index person is

$$\frac{\text{Number of events in index person during observation}}{\text{Person-years of risk in index persons during observation}} \quad (6)$$

In this instance the index person has had an event, the onset of the disease, which makes him more liable to the event, death, which is being studied. We thus obtain an incidence rate of mortality among these persons which is the mortality rate of persons known to have the disease. This rate must necessarily be much higher than any rate calculated for the household associates of these index persons from

$$\frac{\text{Number of events in associates during observation}}{\text{Person-years of risk of associates during observation}} \quad (7)$$

because the probability of mortality is greater among those who are known to have the disease than among their associates for whom the occurrence of the disease is not mandatory. While in this case we have two incidence rates, they are of a different order, and hence should not be combined. If the purpose is to obtain a measure of the comparative risk of death in these families and the general population, the index persons must be excluded from the tabulations, and the analysis be confined to the experience of their household associates.

III. *Families chosen for an event in the index person which is not related to the event being studied—*

If the selection of the index person is by some mechanism having no relationship to the event under study, then the index person and his family share a common risk to the event, and may be considered as belonging to the same universe. This case is illustrated by such studies as those of the common cold in the families of army officers. Here the index person enters the study because he is an army officer, which bears no appreciable relationship to risk of the event under consideration, namely, the common cold. In setting up the rate for common cold, formula (3) may be used and it is unnecessary to exclude the index person or to consider his experience separately.

IV. *All families in an area included in the study—*

When all families in an area are included, it might appear that there was no selection involved and that we were dealing with the case just considered

under (III). However, in dynamic studies which are retrospective, where the family is the unit, there is a bias present which is related to the index person. This is most apparent in studies on mortality, and will therefore be discussed for this case.

Suppose a canvass were made of all families resident in a city as of January 1, and reasonably accurate answers were obtained to the following questions from each family present:

1. How many people live in the household now?
2. How many people lived in this household a year ago?
3. How many people died in this household during the year?

It might be expected that the mortality rate for this city during the year could be obtained from the formula

$$\frac{\text{Number of deaths in families during year}}{\text{Mean population of families during year}} \qquad (8)$$

but this rate would be too low to represent the mortality rate in the city.

The reason for this is that, in spite of the fact that all families present in the city at the end of the year are included, these are not all of the families present *during* the year. Only those families which are existent on the day of survey are included, and no data have been obtained on the families which ceased to exist as such during the year. To appreciate the bearing of this on the mortality rate, we should consider the reasons for families passing out of existence.

It is, of course, apparent that a family will cease to exist if all of its members die. This is not a rare occurrence in one-member families, it is less frequent in two-member families, and the probability of its occurrence decreases as the size of the family increases. It is certain, however, that if no member of the family remains alive, the family is nonexistent, and when a survey is made, no record will be obtained of such families, although deaths in them will have contributed to the total mortality of the area.

But it is not necessary for all members of a family to die for the unit to become nonexistent. For example, if a family consists of a widow and 4 young children, the death of one of the children would not necessarily break up the family unit, but if the mother dies, there may be no other individual capable of maintaining the family as such. The result is that the family is dispersed, the children enter new households, and any data obtained upon them in the survey will not include their experience in the "dead" family. In general, we can say that families break up because of the removal from the group (by death or for other cause) of one member whose continuance in the household is essential for its existence as a unit.

If families break up for this reason, it follows that if they are to continue to function as units, each must contain at least one individual capable of holding the group together—one member who serves as a "binding post" to maintain the unit. This means that in each existent family there is one individual (almost invariably an adult) who *must* be living. This individual is designated the index person because his survival to the time of investigation is responsible for the inclusion of the family in the study.

With this in mind, let us now consider the composition of the population on which we obtained data in the canvass covering all families of the city, and the contribution of its members to the mortality rate of formula (8). The contribution of the index persons may be expressed as

$$\frac{0}{\text{Mean population of index persons during year}} \qquad (9)$$

since the index person, by definition, must be living. The contribution of the

familial associates of the index person is

$$\frac{\text{Number of deaths among familial associates during year}}{\text{Mean population of familial associates during year}} \quad (10)$$

which is a true rate.

This analysis indicates that the index person is not at risk of the event which is being studied. The fact that he can contribute only to the denominator of ratio (8) and not to the numerator is directly responsible for the deficiency of the rate calculated with all members included. To obtain a true mortality rate for the area, the index person must be excluded.

It thus follows that in each family, the member designated as the index person must be determined. In family studies where the households are selected *because* of the occurrence of a specific event in the index person, there is no question of his identity. When all existent families are included, however, the denomination of the index person is not so certain. By our definition, the index person is that individual responsible for the inclusion of the family in the study, and if all existent families are included it is, therefore, the person responsible for the maintenance of the family as a unit. Such a person must almost certainly be an adult and must be capable of holding the household together. In families in which there are two or more such individuals, the preferred method of designating the index person is by some random selection from among the qualified individuals. This method is preferred to that of making the terms "head of the household" and "index person" synonymous, which would tend to exclude an undue proportion of male members from the population at risk.

SUMMARY

In investigations where the family is the unit of study, the index person is the member responsible for bringing the rest of the family into the study. If incidence rates for some event are to be set up on the family experience, and compared with those in the general population, it is critical to determine whether the event causing selection of the index person is in any way related to the event under study. If there is any relationship whatsoever between the selection of the index person and the event for which the rate is set up, then the index person belongs to a different universe of discussion from that of his familial associates, and should be excluded from the calculations. This relationship may be positive, that is, the index person may certainly have, or be at increased risk of having, the event being studied. This case is illustrated by studies of morbidity or mortality of tuberculosis where the index person is a known case. On the other hand, the association may be negative where the index person has no risk, or a decreased risk, of the event in question. This is illustrated by the retrospective study of mortality or morbidity in family groups where survival of the index person is essential to the inclusion of the family in the study. In all such cases, the experience of the index person and that of his family associates cannot be combined to produce meaningful rates.

In the rather rare family studies where the choosing of the index person is entirely unrelated to the event under study, and where only the family experience subsequent to the time of selection of the family is considered, the index person and his family associates may be considered as belonging to the same universe of discussion, and incidence rates for their combined experience may be set up.

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Family Records in the Health Department*

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THE health officer realizes that in the course of his work many services rendered on behalf of an individual affect other members of the household, and sometimes deals with the family as a group when he encounters a specific problem in a home. But much of his thinking is in terms of cases reported and individuals served, and the word "family" seldom appears in health department annual and special reports; or for that matter in textbooks on public health organization. Development of methods for using family as an administrative unit by nursing and social agencies, and growing interest in studies such as those presented here, make it desirable to explore the situation as to family records now existing in health departments. One may then speculate as to what extent keeping account of services on a family basis might contribute to more efficient administration and provide material for research.

Family information is commonly found in three types of health department records, namely, clinical history sheets, nursing folders, and communicable disease investigation forms. The medical term "family history" was obviously borrowed from hospital and dispensary practice many years ago and the purpose was to assist the clinician. A space on record forms was sometimes labelled "family history" without amplification, and sometimes the father, mother, and other relatives were mentioned.

Among forms of this type were cards or sheets used in tuberculosis clinics. Here it was the clinician who wanted family data to aid in diagnosis, and the records were not primarily designed for use in contact investigations and other control measures. Some health departments soon found it necessary to keep a roster of members of tuberculous families, but among a group of large cities from which record forms were collected as recently as 1929, there were still two without provision for a household roster on tuberculosis forms. Moreover the term "family history" was repeated on several blanks in all cities.

Public health nurses in official agencies are under the impression that they began to list members of households when home visiting became a part of tuberculosis control. Visiting nurse organizations kept family records much earlier, and were influenced by closely related social and welfare groups. When organized in the 70's, "family societies" apparently copied many of their record keeping systems from charitable organizations in England. By twenty or twenty-five years ago, "so-

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cial data" or "history" sheets were common to social work, and to official and voluntary nursing records. These for the most part, however, were for administering current situations, rather than for keeping permanent, continuous records of what happened to families. An interesting proposal for voluntary continuous registration of important events in family life was made by Taylor in 1912.

Although a fairly diligent effort has been made to do so, it has been impossible to determine by whom the nursing family folder was originally devised or by what nursing service it was first used. Writing in 1920, Olmsted described a family folder for the rural nurse working alone or in a small unit. Discussing the advantages of such a system, she declared that it saves clerical labor, since information regarding the family is not repeated on various forms. She also said that it helps to impress upon the nurse the effect of wages and environment, and aids in coöperation with other agencies; it assists in communicable disease control, and in collecting statistics.

The necessity for having as complete a picture of the family as possible, and for assembling all facts in one place, developed in larger communities with the change from specialized to generalized nursing. Family folders became a part of the record system of many official and voluntary nursing agencies by the middle of the 1920's, and their use has been continued and extended since. Thus, in the nursing field, the family is an established administrative unit, but even here the records may not be suitable for analysis to evaluate activities and services.

According to Frost (1938), Chapin deserves the credit for being the first in this country to list routinely members of households in which communicable disease occurred, and numbers of exposed persons became ill. Dr. Chapin's own statements quoted by Frost indicate that he thought of using the information he collected for study as distinguished from administrative purposes. He speaks of family records for acute communicable diseases in relation to "scientific investigation" and of "collecting facts which perhaps are not of much value in themselves but may be when the number of cases can be increased." The results of his enumerations of exposed persons and cases among them must have been in his mind when he wrote on fumigation and other subjects, but they are rarely mentioned. And one of his close associates is of the opinion that he regarded his acute communicable disease data as of particular value for special studies.

His example of using local facilities for collecting information has not been followed in many health departments, either with respect to acute diseases or to tuberculosis and other chronic diseases more difficult to handle administratively and statistically. Some years ago it was planned to study mortality in upstate New York from streptococcus infections not diagnosed as scarlet fever but occurring in scarlet fever families. This was to be done by collecting case cards from all over the area and by comparing names of persons on such cards with registered deaths. The enterprise failed because the family roster on most cards was incomplete. Names written down were ordinarily those of children affected by quarantine and school exclusion regulations. Acute disease records such as this collection from a hundred or more local jurisdictions in the 1930's could not have been used for obtaining secondary attack rates, easily calculated from Dr. Chapin's observations long before the turn of the century.

It is apparent from the foregoing that family records have been developed independently by divisions, bureaus, or other units for a variety of reasons, and

that they are incomplete and scattered through health department services. The system devised in Westchester County to consolidate records and to bring the sum of family needs and services into prominence has been previously described in detail (Bellows and Ramsey, 1939).

This system provides for a steady flow of information between the central office and the field. There is a single folder for each family in which all medical and nursing records are bound together. The same folder contains child hygiene, tuberculosis, syphilis and orthopedic clinic records, as well as records of nurses' home visits. After each clinic the folder goes to the central office, where pertinent data are entered on case registers and in the department's master index. At the same time information revealed by the index which came directly to the central office is placed in the folder for the benefit of the field workers. The folder contains a summary sheet on which all services rendered to the family appear except those for minor communicable diseases such as measles and chicken pox. Each new family is cleared through the County Council of Social Agencies, and welfare and other agencies which have been in contact with the family are listed on the summary sheet.

A 4 years' trial has proved the advantages of the new record system. Clinicians find it helpful to have all the medical records of the family at hand when they are examining or advising their patients. Information obtained by physicians in clinics and nurses in the field is pooled, and the folder itself tends to encourage consultation between members of different divisions of the health department in deciding the best interests of the patient. The statistical division, using the same original records as the physician and nurse for its clinic and other reports, adds pertinent facts to them, such as information from case and laboratory reports and birth and death certificates. The statistical division may find data in the folder of value to itself, such as facts that help in improving the accuracy of death certification, or tuberculosis and syphilis contact registers. Since the coördinated record system was introduced, the proportion of families carried on two or more clinic services has nearly doubled, the increase being from 356 to 708 families.

By using the folders and master index it is possible to obtain many facts of administrative interest. For example, it was found with little effort that among the 6,437 families enrolled on clinic services, 186 are households in which there are or have been cases of both syphilis and tuberculosis. Cancer has been reportable in New York State for only 18 months, but there are known to be 68 health department clinic families with cancer and tuberculosis cases, 24 in which there were both syphilis and cancer, and 8 families with cases of all three chronic diseases.

Additions are being made constantly to the pooled family records, and they should prove a body of information valuable for a wide variety of special studies. A year ago a study was undertaken of tuberculosis among familial associates of tuberculosis cases as compared with the same disease among familial associates of cases of syphilis. The tuberculosis rate among associates of that disease (1 per 100 person-years) was similar to that in other studies, and there was no evidence that tuberculosis was more prevalent among associates of syphilis cases than in the general population.

These findings appear to afford a more or less satisfactory test of the adequacy of the original records. Actually, it was necessary to correct and add to them before analysis could be undertaken. The most common fault was incompleteness of the family roster.

Members of the household who had left or died were often omitted, and sometimes an over zealous nurse listed transient visitors as members of the family. This experience led to a course of instruction for nurses on the content of a family roster, the reasons for filling out a roster completely in relation to their own work, and so that the record might serve research purposes.

The majority of family studies in recent years have been conducted under unusual circumstances with record forms quite different from those in routine use, and often with personnel outside of the regular health department staff. There is no question as to the value to the health officer of keeping his clinic and field records on a family basis. It also seems entirely feasible to maintain health department records of such a character and quality that they will be suitable for studies in which life table methods and other statistical procedures are employed. And it should be possible to assemble data routinely with much less effort and expense than by special surveys. In other words, it appears that health officers themselves may well take cognizance of newer methods of statistical investigation and, even though unfamiliar with the pitfalls and technics of family studies, should give thought to the consolidation of record systems.

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Nutrition Foundation Announces Policy for Grants

THE Nutrition Foundation, New York, N. Y., has announced that grants will be made to established institutions in the United States and Canada, the first series becoming effective July 1, 1942.

Problems of critical importance in the war emergency will be given primary consideration. Grants will also be made in the support of projects that have a direct bearing upon public health.

Special concerns of the Foundation include dental caries, and nutritional requirements of infants, growing children, and the old age group. The Foundation's long-time program will place emphasis upon fundamental research to advance the frontiers of science.

Illness in the Chronic Disease Family*†

JEAN DOWNES

Milbank Memorial Fund, New York, N. Y.

A STUDY of illness in a relatively small population composed of family units offers an unusual opportunity for observation of morbidity in particular groups of families. This report presents the illness experienced during a 12 month period by the members of 381 families selected because of a case of chronic disease from a total sample composed of 1,757 families living in the Eastern Health District of Baltimore.

In a previous report dealing with chronic disease among middle and old-age persons during the first year of the morbidity study in the Eastern Health District of Baltimore, it was shown that those with serious chronic disease carry the main burden of illness in the population after age 40 is reached. Ambulatory cases formed only 18 per cent of the total population. They not only had a higher frequency of attacks of illness but also suffered an excessive amount of disability in comparison with disability from illness in the remainder of the middle and old-age population. When families with chronic disease cases of all ages were considered, 25 per cent of the total families observed for a 12 month period had one or more members who reported the presence of chronic disease. This means that a considerable burden of illness falls upon a relatively small proportion of the total families.[1]

The study reported upon previously considered the illness experience of the chronic patients compared with illness in the rest of the population. Since the burden of illness of the chronic patient falls heavily upon his or her family unit, it is of interest to present the complete picture of illness in the chronic disease family by a consideration of the sickness record of the other members of the family, namely, those who have not reported the presence of chronic disease. The rate of illness for the chronic disease family may be compared with that of the remaining population.

When the special study was initiated, the Eastern Health District of Baltimore consisted of two city wards containing 11,896 white families or households, including 43,377 persons, and 3,413 colored households, including 13,784 persons.‡ As far as the white population is concerned, the district is considered fairly representative of the localities in the city in which the wage earning population lives; that is, it contains some families in relatively poor economic circumstances, wage earning families in moderate circumstances, relatively few families in the professional class, and no families that can be classed as wealthy. Consequently, the

* Read at a Joint Session of the Vital Statistics and Epidemiology Sections of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 16, 1941.

† From the Division of Public Health Methods of the National Institute of Health and the Milbank Memorial Fund.

‡ A few months after the special study of illness was started, the Eastern Health District was enlarged so that it now includes a population of approximately 100,000. Any reference to the Eastern Health District in this paper, however, is to the former district composed of Wards 6 and 7.

TABLE 1

Age Distribution of the Sample Population in Thirty-five Blocks in the Eastern Health District of Baltimore, Compared with Total White Population in the District, 1939–1940

Age	Sample Population (White Families) 1939–1940	Total White Population in Eastern Health District 1939	Sample Population (White Families) 1939–1940	Total White Population in Eastern Health District 1939 *
	Per Cent		Number	
All Ages	100.0	100.0	5,483	43,377
0– 4	7.3	6.5	399	2,833
5– 9	7.4	6.8	404	2,965
10–14	8.2	8.5	451	3,666
15–19	9.8	9.9	537	4,272
20–24	8.9	10.2	484	4,419
25–29	9.2	9.4	504	4,088
30–34	9.0	8.2	493	3,573
35–44	14.7	14.3	806	6,164
45–54	12.5	12.7	682	5,508
55–64	7.5	7.7	408	3,314
65+	5.5	5.8	301	2,519
Unknown Age	....	....	14	56

* Obtained from preliminary tabulations of unpublished data collected and analyzed by the Department of Biostatistics of the Johns Hopkins School of Hygiene and Public Health with the assistance of the Baltimore City Health Department.

district cannot be considered as strictly representative of Baltimore as a whole, but it is probably representative of the population which forms the majority in the city.

There are three hospitals within the Eastern Health District and two adjacent to it. Each of these hospitals has an outpatient department. Approximately 150 private physicians practise regularly within the district. However, during the first and second years' study, from 300 to 400 different private physicians served the observed population.

DATA AND METHOD OF STUDY

The method of sampling in this particular study has been described in detail in a previous report.[2] It is sufficient here to say that the white families living in thirty-five city blocks formed the sample population. The plan of the study was to follow families that live in a group of houses in certain blocks rather than to follow a selected group of families. No attempt was made to continue visiting families that moved out of these houses during the period of the study, but the new families that moved into the houses vacated in the sample blocks were included in the study. Monthly visiting was employed in this study in order to secure a high degree of accuracy in the reporting of illness. The record of illness started with the first visit to the family; no attempt was made to secure a report of illnesses which had occurred during a period preceding the first visit, except illness existing on the day of the visit.

In the studies of illness conducted by periodic canvasses of families, "illness" may be considered to include any affection or disturbance of health which persists for a considerable part of one or more days. In this study, as in other family surveys, no specific definition of illness was formulated. The records of "illness" are of sicknesses reported by the household informant (usually the housewife), either as experienced by herself or as she observed them in her family.* Physical

* The causes of illness as reported by the family informants were submitted to the attending physician for confirmation or correction. The cause of illness for clinic attendance and hospital admissions were checked against the records of the clinic or hospital where the service was given.

defects or deformities, even though disabling, were excluded from this analysis. Illnesses present in the family at the time of the first visit were recorded, but in this analysis are not considered as illnesses occurring within the period of the study.

Representativeness of the Sample Population—The data for this analysis are based upon the experience of all families observed two months or longer during the second year of the morbidity study, that is, the year ending June, 1940. There were 1,757 such families, including both those which moved out or into the study area during the year. In the previous year there was a total of 1,796 families in the morbidity study which were observed two months or longer.

The sample population for the first two years of study was found to be representative of the universe from which it was drawn, the white population of the district, with respect to age constitution and size of household. The age distribution of the population in the 1,757 families compared with the age distribution of the total white population of the Eastern Health District in 1939 is shown in Table 1. It is readily apparent that there are no important differences between the sample population and the total white population with respect to age content. The average size of white household in that year for the total district, 3.9 persons per household, was only slightly higher than in the sample population, where there were 3.8 persons per household.

Selection of Chronic Disease Families—The chronic disease families were selected for special analysis on the basis of the presence of an individual for whom any one of the following conditions or diagnoses was reported: mental disease or mental deficiency, neurasthenia or nervous breakdown, heart disease, hypertension or high blood pressure, arthritis, diabetes, varicose veins, gall-bladder disease, ulcer of the stomach or duodenum, chronic nephritis,

TABLE 2

Type of Index Case and Other Cases of Chronic Disease in 381 Families in the Eastern Health District of Baltimore, 1939–1940

Type of Index Case	Total Families	Other Individuals with Chronic Condition Similar to Index Case	In Addition, Other Individuals with Chronic Disease in Family: Heart	Hypertension	Arthritis	Diabetes	Varicose Veins	Syphilis	Ulcer of Stomach	Tuberculosis	Rheumatic Fever	Gall-Bladder	Cancer	All Cases in Family
An Individual Who Has Been Diagnosed as:														
Mental Disease or Mental Deficiency	50	9	3	2	1	1	2	..	..	..	..	..	..	68
Neurasthenia	29	1	1	..	..	..	..	1	..	..	..	..	..	32
Heart Disease	62	2	..	5	3	3	..	..	1	1	..	..	..	77
Hypertension	78	6	..	..	5	..	1	..	..	..	2	..	..	92
Arthritis	69	3	..	..	..	..	..	2	..	..	2	1	1	78
Diabetes	24	2	..	..	..	..	1	1	..	..	..	..	..	28
Rheumatic Fever	25	5	..	..	..	..	..	..	..	..	..	..	..	30
Varicose Veins	13	1	..	..	..	..	..	..	..	..	..	..	..	14
Gall-Bladder Dis.	10	0	..	..	..	..	..	..	..	..	..	..	..	10
Tuberculosis	11	0	..	..	..	..	..	..	..	..	..	..	..	11
Syphilis	2	0	..	..	..	..	..	..	..	..	..	..	..	2
Ulcer	4	0	..	..	..	..	..	..	..	..	..	..	..	4
Nephritis—Chronic	3	0	..	..	..	..	..	..	..	..	..	..	..	3
Cancer	1	0	..	..	..	..	..	..	..	..	..	..	..	1
Total	381	29	4	7	9	4	4	4	1	1	4	1	1	450

cancer, rheumatic fever and rheumatic heart disease, tuberculosis, and syphilis. Out of the total 1,757 families observed during the second year of study, 381 or 22 per cent reported one or more individuals with one of these diagnoses.*

It is recognized that such a group of diseases or conditions is homogeneous in only one respect, their tendency to chronicity. Tuberculosis and syphilis are known to be infectious diseases. Knowledge of the etiology and of the pathology of the remaining conditions listed is incomplete. Since this study is not concerned with the occurrence of secondary cases of chronic disease of like diagnoses in families, for purposes of observation of morbidity among other family members not affected, the experience of the 381 families has been combined.

Table 2 shows the families grouped according to the type of index case, the case which formed the basis of selection of the family. The total number of cases of chronic illness in each group of families is also shown. For some of the chronic diseases the number of families was very small. Families selected because of heart disease, hypertension, arthritis, mental disease and mental deficiency, neurasthenia, rheumatic fever, and diabetes were the most frequent. These families also had cases of chronic disease among members of the family other than the index case. In the total 381 families there were 29 individuals with a diagnosis similar to the index case in the family. There were 40 other individuals with chronic disease unlike the index case. In all, there were 450 cases in the 381 families.

The 381 family units afford two groups of population for study: the 450 chronic disease patients, 425 of which were ambulatory cases; and the other members of the family with no reported chronic condition. The morbidity which occurred in these two population groups may be compared with the morbidity experience of the individuals in the 1,376 families in which no chronic cases of illness were reported.

The population groups with which this report is particularly concerned may be more clearly described as follows:

A. 1,376 families with no chronic cases—*Group 1*

B. 381 families with one or more chronic cases—

Members of the family with no chronic disease—*Group 2*

Members of the family having chronic disease—*Group 3*

CERTAIN CHARACTERISTICS OF OBSERVED FAMILIES

Before a comparison of the morbidity experience of the three population groups is made, it is important to note the differences between the two classes of families with respect to characteristics such as migrant families (those which moved into or out of the study), social class, and age constitution of the population. The 1,376 families in which no chronic disease was reported had a higher proportion of migrant families, that is, families which moved into or out of the study area during the year; 27 per cent of these families moved, compared with 20 per cent of the 381 families. Families not classed as home owners are more apt to move; only 40 per cent of the 381 families lived in rented homes, and 53 per cent of the larger group of families were renters. The average size of the 1,376 households was 3.8 persons per household, compared with 4.2 persons per household in those selected on the basis of a case of chronic disease.

The distribution of each of the two groups of families according to the

* Chronic conditions such as chronic bronchitis, asthma, and hay fever have not been considered among the selected chronic diseases.

TABLE 3

Distribution of Two Groups of White Families in the Eastern Health District of Baltimore, According to Occupational Class of Head of Household, 1939–1940

Occupational Class of Head of Household	1,376 Families	381 Families
Professional	2.8	1.5
Business		
Proprietors	11.8	11.3
Clerks—Salesmen	13.2	16.2
Workers		
Skilled	28.2	28.0
Semi-skilled	31.8	31.1
Unskilled	12.1	11.9
All Classes	100.0	100.0

occupational class of the head of the household is shown in Table 3. Though the 1,376 families had a higher proportion of household heads in the professional class than in the 381 families, approximately 3 per cent in the former group compared with 1.5 per cent in the latter, the number of families in this class was so small that the difference between the two groups is unimportant. The point of greatest interest in the table is the striking similarity between the two groups of families with respect to occupational class. From 24 to 27 per cent of the heads in each group of families were engaged in some form of business; approximately 60 per cent were classed as skilled or semi-skilled workers, and 12 per cent as unskilled workers.

From Table 4, which shows the distribution of three population groups by broad age groups and excluding children under 5 years of age, it is apparent that there are no important differences with respect to age between Groups 1 and 2, that is, individuals in the 1,376 families, and those in the 381 families who reported no chronic disease. However, when the chronic disease patients are added to the population of the 381 families, there is in this group a considerably greater proportion of older people, 60 years of age and over, than in the 1,376 families.

INCIDENCE OF ILLNESS AND MEDICAL CARE

In the following discussion of illness and medical care, confinements as a cause of illness are excluded. Table 5 shows the incidence of attacks of illness and the amount of medical care

TABLE 4

Age Distribution of Population in Families with No Chronic Disease and in Those with One or More Cases of Chronic Disease, in the Eastern Health District of Baltimore, 1939–1940

Age Groups	1,376 Families With No Case of Chronic Disease	381 Families With One or More Cases of Chronic Disease *	381 Families With One or More Cases of Chronic Disease (Including the Chronic Cases)
	Per cent		
All Ages	100.0	100.0	100.0
5–19	28.0	32.6	25.6
20–39	39.8	35.2	29.5
40–59	25.6	24.6	28.6
60 and Over	6.6	7.6	16.3
	Number of Years of Life		
All Ages	3,708	912	1,301
5–19	1,036	297	333
20–39	1,477	321	384
40–59	949	224	372
60 and Over	246	70	212

* Excluding individuals with chronic disease

for illness among persons reporting no chronic disease in the populations of each of the two groups of families, Groups 1 and 2, and excluding the patients with chronic disease. The cause of illness is shown for two broad classes, respiratory diseases and "all other" illness. Two classes of disabling illness are indicated by "bed illness," which include hospital illness, and "hospital illness" alone. These were illnesses which confined the individual to bed or caused admission to a hospital. Amount of medical care is expressed in terms of private physician visits (home and office) and clinic or dispensary visits.

Group 1 families. The rate of "bed illness" was 37 per cent higher in the Group 2 families and "hospital illness" was 21 per cent higher than was noted in the 1,376 families.

The incidence of medical care was also considerably higher, 34 per cent, for persons in the 381 families than for those in the 1,376 families. There were 1.5 physician visits per person per year for illness of "nonchronic" members of the 381 families compared with 1.2 visits per person for illness in the 1,376 families. The difference in the rates for clinic visits was even greater; the rate for persons in the small group of families was 48 per cent

TABLE 5

Incidence of Attacks of Illness Among Persons with No Chronic Disease in Two Groups of Families: 381 Families (Index Case One with Chronic Disease) and All Other Families in the Eastern Health District of Baltimore, 1939–1940 *

Classification of Illness and Medical Care	Group 1 3,708 Years of Life. All Other Families	Group 2 912 Years of Life. Persons in 381 Chronic Families, Excluding Chronic Cases	Ratio of the Rate for Group 2 to Rate for Group 1
	Rate per 1,000 Population		
All Causes of Illness †	1,258	1,550	1.23
Respiratory Diseases	707	840	1.19
All Other Illness	552	711	1.29
Bed Illness	262	359	1.37
Respiratory Diseases	165	216	1.31
All Other Illness	97	143	1.47
Hospital Illness	47	57	1.21
Medical Care			
Physician Visits	1,150	1,541	1.34
Clinic Visits	386	571	1.48
Deaths	5.9	6.6	1.12

* Includes only individuals 5 years of age or older
† Excluding confinements

The third column of Table 5 shows the ratio of the rate for the Group 2 population (381 families) to the rate for the Group 1 population, persons in the 1,376 families. Persons in the Group 2 population had an annual illness rate of 1,550 per 1,000 which was 23 per cent higher than the rate of 1,258 observed among persons in the above the rate for those in the 1,376 families.

"Bed illness" and "hospital illness" may be judged as one indication of severity of illness. It is apparent that persons with no known chronic disease who were members of the 381 families suffered severe illness with greater frequency than did persons in

TABLE 6

Incidence of Illness and Medical Care for 425 Ambulatory Patients with Chronic Disease in the Eastern Health District of Baltimore, 1939–1940 *

Classification of Illness and Medical Care	Rate per 1,000 Population		Number of Attacks	
	Illness of Nonchronic Nature	Disabling Illness of Chronic Nature	Illness of Nonchronic Nature	Disabling Attacks of Illness of Chronic Nature
All Causes of Illness †	1,853	275	721	107
Respiratory Diseases	895	...	348	...
All Other Illness	959	...	373	...
Bed Illness	414	185	161	72
Respiratory Diseases	224	...	87	...
All Other Illness	190	...	74	...
Hospital Illness	67	41	26	16
Medical Care				
Physician Visits	2,021	612	786	238
Clinic Visits	499	386	194	150

* Population includes 389 years of life for 425 ambulatory patients with chronic disease. (Four bed patients at home and 21 institutional patients are excluded.)
† Excluding confinements

the larger group of families. The consistency of the excess rate for all classes of illness in the Group 2 population suggests that these individuals constituted a more sickly group than did those of similar age in the 1,376 families.*

The incidence of attacks of illness of a nonchronic nature for individuals reporting the presence of a chronic disease or condition (the population of Group 3) is of interest at this point. The annual amount of illness for the 425 ambulatory patients 5 years of age or older, representing 389 years of life, is presented in Table 6. The crude rate of illness from all causes was 1,853 per 1,000 population, a considerably higher rate than was noted for either of the other population groups. When this rate is adjusted to the age distribution of the population reporting no chronic disease, it is reduced to 1,800 cases of illness per 1,000 population, a reduction of approximately 3 per cent. Age cannot be considered as an important factor influencing the level of the morbidity for this group of patients.

* Since the populations of Group 1 and Group 2 are quite homogeneous with respect to age, adjustment of the illness rates for age does not change their level.

The rate of disabling attacks of illness of a chronic nature is shown in the second column of Table 6. Such attacks greatly increase the total rate of bed and hospital illness. For example, the rate of hospital illness is increased from 67 to 108 per 1,000 population per year. On the whole, acute episodes of chronic disease represent severe attacks of illness.

The incidence of medical care which is related to the level of morbidity was also higher for the chronic disease patients than for the other two population groups. Physician visits for illnesses of a nonchronic nature were 2 per person compared with from 1 to 1.5 visits per person in the other two population groups. If medical care for acute attacks of illness of a chronic nature be included, it is apparent that ambulatory patients with chronic disease had considerably more care for illness than did persons in the other populations studied.

It is believed that the illnesses of a nonchronic nature for all three population groups are generally comparable. The excesses in the rates for the chronic disease families are summarized

Ratio of the Rate of Illness for Populations of Groups 2 and 3 to the Rate for Group 1

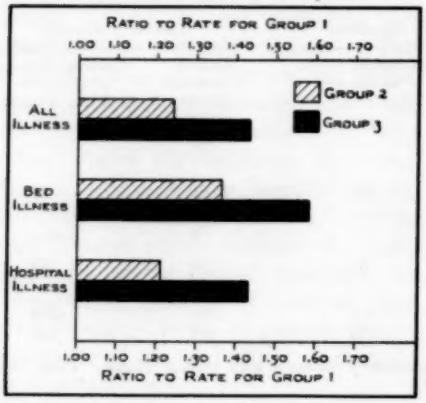
RATIO TO RATE FOR GROUP 1
1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70
GROUP 2
GROUP 3
ALL ILLNESS
BED ILLNESS
HOSPITAL ILLNESS
1.00 1.10 1.20 1.30 1.40 1.50 1.60 1.70
RATIO TO RATE FOR GROUP 1

FIGURE 1

in Figure 1 by presenting the ratio of the illness rates in their populations, Groups 2 and 3, to the rate for the remaining families observed during the second year of the morbidity study. It is clearly apparent that the rates for the three classes of illness, all illness (disabling and nondisabling), bed illness, and hospital illness were much higher in the chronic disease families than in the population of the 1,376 families. Among the chronic disease patients, Group 3, the ratios were 1.43, 1.58, and 1.43 for "all illness," "bed illness," and "hospital illness," respectively.

ATTENDED CASES OF ILLNESS

In Tables 5 and 6, medical care was expressed in relation to the total population. Medical care may be expressed also in relation to attended cases of illness. These data for illnesses of a nonchronic nature are shown in Figure 2 for each of the three population groups. The mean number of physician visits per attended case varied from 3.5 in Group 1 (the 1,376 families) to slightly more than 4 per case in the 381 chronic disease families, Groups 2 and 3. Clinic visits per clinic attended case were similar for the populations of Groups 1 and 2 with a mean number of visits of 4.7 and 4.9, respectively. Chronic disease patients (Group 3) had fewer visits, an average of 3 clinic visits per case.

It is of interest to show for each population group the proportion of illnesses of a nonchronic nature which had medical care. These data are shown according to classes of illness in Table 7. Although there are some variations among the three population groups in the proportion of attacks which received medical care in the various classes of illness, yet the three groups of population on the whole show a striking similarity. This fact may be clearly seen in Figure 3 where the data are presented graphically. Approximately the same proportion of the total illnesses in each of the three groups had medical care, namely, 33 to 34 per cent. The proportion of bed illness having medical care was also similar for the three groups, from 61 to 66 per cent of the total cases. If attended cases of illness in this particular population, where physicians' care and clinic care for illness is considered to be available to an unusual

Mean Number of Physician and Clinic Visits Per Attended Cases in Three Population Groups

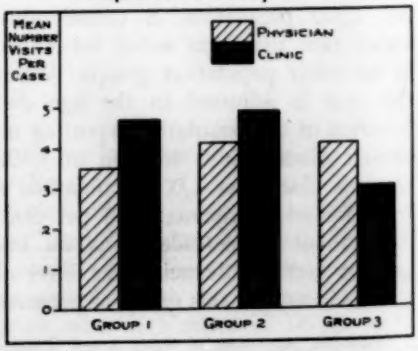

FIGURE 2

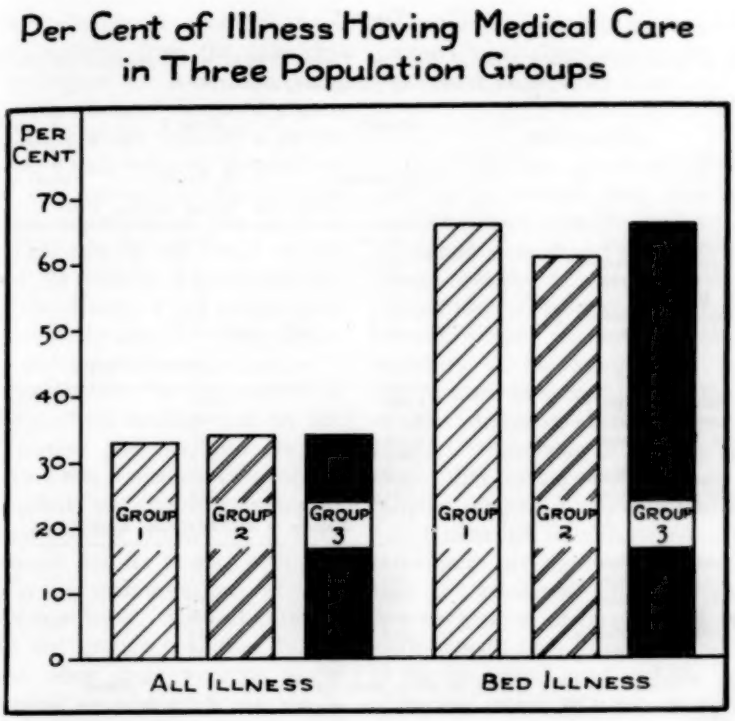

FIGURE 3

degree, may be interpreted as a reliable reflection of severity of illness, the surprising similarity in the three groups of population is of considerable interest. It would seem to indicate that regardless of the level of illness, either bed or all illness, a certain proportion will be severe enough to be thought by the individual to warrant medical care.

Acute episodes of illness of a chronic nature among ambulatory patients did not follow the same pattern as illnesses of a nonchronic nature. Sixty-nine per cent of all attacks of chronic illness and 82 per cent of the bed illnesses had medical care. This again emphasizes the severity of acute manifestations of chronic disease.

Another point of interest is a comparison of the three groups of population with respect to the proportion of illnesses of a nonchronic nature that were bed illnesses and that were hospital illnesses. These data are presented in Figure 4. Again the three groups show

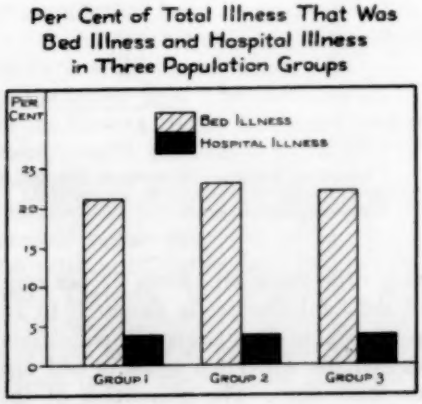

FIGURE 4

TABLE 7

Per cent of Illnesses Having Medical Care in Three Groups of Population in the Eastern Health District of Baltimore, 1939–1940 *

Classification of Illness	Group 1 1,376 Families	Group 2 381 Families	Group 3 Patients with Chronic Disease in the 381 Families
	Per cent Having Medical Care		
All Causes of Illness †	32.5	34.0	33.7
Respiratory Diseases	25.4	26.2	31.3
All Other Illness	41.5	43.2	35.9
Bed Illness	66.5	60.6	66.5
Respiratory Diseases	61.3	57.4	69.0
All Other Illness	75.3	65.4	63.5
	Number of Attacks of Illness		
All Causes of Illness †	4,666	1,414	721
Respiratory Diseases	2,620	766	348
All Other Illness	2,046	648	373
Bed Illness	971	327	161
Respiratory Diseases	610	197	87
All Other Illness	361	130	74
	Number of Attacks Having Medical Care		
All Causes of Illness †	1,515	481	243
Respiratory Diseases	665	201	109
All Other Illness	850	280	134
Bed Illness	646	198	107
Respiratory Diseases	374	113	60
All Other Illness	272	85	47

* Group 1: Members of 1,376 families in which there were no cases of chronic disease
Group 2: Members of 381 families each with one or more cases of chronic disease, excluding chronic disease patients
Group 3: Chronic disease patients in the 381 families
† Excluding confinements

TABLE 8

Amount of Medical Care Received by Ambulatory Patients with Chronic Disease in the Eastern Health District of Baltimore, 1939–1940 *

Type of Care	All Illness †	Acute Illness of Nonchronic Nature	Disabling Attacks of Chronic Illness	All Other Care for Chronic Condition
	Rate per 1,000 Population			
Physician visits	4,396	2,021	612	1,763
Clinic Visits	2,116	499	386	1,231
	Number of Visits			
Physician Visits	1,710	786	238	686
Clinic Visits	823	194	150	479

* Population includes 389 years of life for 425 patients. (Patients confined to bed or institution throughout the period of observation are excluded.)
† Excluding confinements

very little variation. From 22 per cent of the total illnesses in Group 1, to 26 per cent in the Group 2 population caused the individual to be in bed one or more days. The proportion of the total illnesses which caused hospitalization was identical for each of the three groups. It should be emphasized that confinements as a cause of illness have been excluded from all groups of population and, for chronic patients, attacks of illness considered to be due solely to

the chronic disease or condition have also been excluded from the data presented in Figure 4. It is interesting that the proportion of illness of a nonchronic nature which required a period in bed and which required hospitalization was very uniform in the different populations regardless of the level of illness. This can be explained on the basis that the relative excess over the rate for the Group 1 population was approximately the same for these classes of illness and for all illness.

This discussion so far has omitted a presentation of all medical care for the 425 ambulatory patients with chronic disease. In Table 6 medical care for the chronic patients was shown according to two categories—for illness of a nonchronic nature and for attacks of illness due to acute manifestations of the chronic disease itself. Medical care received for the chronic condition during the period when there were no acute episodes was not included. Table 8 presents the total medical care received during a 12 month period by the patients from the 381 families. The rate of physician visits for chronic disease was 2,375 per 1,000 population or slightly more than 2 visits per person per year. The rate of clinic visits was 1,517 per 1,000. This means a total amount of medical care for the chronic condition of approximately 4 visits per person per year. This same population group had an additional 2.5 visits per person for illness of a nonchronic nature. Chronic disease patients had from 3 to 4 times as much medical care for illness as did the other members of their families and the rest of the sample population studied.

Individuals in the 381 chronic disease families formed 26 per cent of the total observed population, had 54 per cent of the total illnesses, and received approximately 50 per cent of the medical care for illness given to the population. Individuals from these families also constituted almost 40 per cent of the persons hospitalized during the second year of the morbidity study.*

DISCUSSION

From the data presented in this report it is evident that members of families selected on the basis of a case of chronic disease had an excess rate of illness compared with the remaining population. This was true for both chronic disease patients and for other members of the family. No attempt will be made to speculate as to the cause of this difference between groups of families. Some may be inclined to conclude that excess morbidity in these families suggests a concentration in certain families of individuals who through inheritance are less resistant to disease than the remainder of the population. A consideration of factors of the social environment, such as occupational class of the household head and the amount of medical care in relation to the amount of illness aside from chronic disease, revealed no striking differences between the two groups of families. However, there are other environmental factors which have not been a part of this study.

Sydenstricker, in a discussion of health and environment, said: " Diet, as determined by food supplies, dietary habits and economic status, is an important environmental factor in health." [3] Diet is a factor which would not be expected to vary widely as to different members of the family unit. The morbidity study in the Eastern Health District of Baltimore, where the white population is homogeneous with respect to many environmental factors, should offer an unusual opportunity for the study of the relation of nutritional status to illness. Certainly, the influence of this factor upon morbidity must be carefully appraised before an excess of illness in certain family units can be considered

* Includes 21 institutional cases.

as proof of inheritance of a constitution of less vigor and vitality.

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ACKNOWLEDGMENTS are made to the Johns Hopkins School of Hygiene and Public Health, especially to the Departments of Epidemiology, Biostatistics, and Public Health Administration, for generous assistance and coöperation which have greatly facilitated the carrying on of the study of illness in the Eastern Health District of Baltimore; to the Baltimore City Health Department for generous assistance and coöperation, especially in the matter of relationships with the medical profession.

Louisiana Plans New Health Building

THE Louisiana State Board of Health, Baton Rouge, has approved plans for the construction of an office building for the State Board of Health, estimated to cost $348,000. Included in the structure will be facilities for the central laboratories and office space for all the division and section heads. It is expected that the building will be occupied early in 1943.

New health centers have been approved for Alexandria and Shreveport, to cost about $100,000. Smaller units have been approved for Leesville, DeRidder, Lake Charles and Lafayette, Crowley, Natchitoches, Winnfield, Marksville, Ville Platte, Glenmora, Lecompte, Colfax, Bunkie, Oakdale, Jena, Fillmore, Plain Dealing, and Elm Grove.

Use of the Index Case in the Study of Tuberculosis in Williamson County*

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A SOUND program for the control of tuberculosis must be based on accurate knowledge of the prevalence of the disease and the risk of attack and of death for various classes of the population. To obtain such data for a rural area of Tennessee is one of the major objectives of the Williamson County Tuberculosis Study. Since household associates of cases constitute the most important of the classes at risk, the study program includes the investigation of the families of all cases of tuberculosis, the record of the family since establishment, the examination of the present members, and the continuous observation of these families.

The unit began work with the investigation of the reported cases known to the Williamson County Health Department and recorded deaths from the disease in the preceding 5 years. During the period of the study, the physicians of the county have been very coöperative and have referred known or suspected cases to the clinic for examination. This has been the most productive method of discovery of cases and families for study. The data which are being collected and the methods of collection have been discussed in a previous report.[1]

In the preliminary phases of the study, the problem of developing satisfactory methods for studying the prevalence of the disease and for calculating the risk of attack and of death for the household associates was recognized. It was noted that histories of tuberculosis among siblings, parents, grandparents, and other present or former members of the household were given frequently. Also the disease in the white population was often of an exceptionally chronic nature, sometimes causing no apparent disability. Unknown existing cases of this character were in fact found on examination of the present members. For these reasons the new case or death from tuberculosis which directed attention to the family was frequently found to be secondary to a case or cases of tuberculosis occurring in the past. The families with cases and deaths from the disease in the past without new recent cases were not followed. Therefore, the use of the secondary attack rate as used

* Read at a Joint Session of the Vital Statistics and Epidemiology Sections of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 16, 1941. From the Tennessee Department of Public Health. This investigation was made possible by the financial support of the International Health Division, Rockefeller Foundation.

in the study of acute diseases [2] was not believed to be satisfactory. A different method needed to be developed to eliminate such selection of the population and weighting of the group with secondary cases.

The work in the clinic was so organized that the individual who directed attention to the household was usually a case of tuberculosis or a recent death from the disease. Thus the inclusion of this person in the calculation of prevalence rates would necessarily reflect in high rates. To study the findings in families of various classes this case should be excluded so that the results of examination of associates could be compared.

For the calculation of attack and death rates over a period of time the late Dr. W. H. Frost had used a modified life table technic [3] which has proved simple and flexible. However, it is recognized that death rates calculated from past records of families are unusually low. Deaths, especially those of infants, occurring in the past are often omitted. Also the life table experience of established families is known to exclude certain classes of adults who have high mortality rates. Another reason for the low mortality rates for families is the inclusion in the life experience of a living person who directed attention to the family. Naturally this individual cannot be assumed to have been at risk for death, since his survival was essential for the investigation of the family. Also the inclusion of the cases of tuberculosis who directed attention to the family in the life experience during the period of observation would increase the death rate, since persons suffering from the disease are at great risk for death.[4]

Dr. Frost, the consultant of the Tennessee Department of Public Health on Tuberculosis Studies, recognized the need for a relatively simple statistical procedure so that valid comparisons could be made of the risks in different types of tuberculous families in Tennessee and elsewhere. To make such comparisons it is necessary to designate the person who directed attention to the family and then study the findings among his associates. By this method the defects inherent in the secondary attack rate and the inclusion of the informant can be eliminated. In the memorandum of his visit to Tennessee in June, 1933, Dr. Frost used the term "index case" in referring to the individual known or suspected to be suffering from tuberculosis. The proposed use of the index case is well described in a more extensive memorandum of Dr. Frost dated December 28, 1936, in which he expressed the practical questions with which the health officer is concerned in tuberculosis control:

> "Given a case of tuberculosis of designated clinical type brought to the attention of the clinic because of known or suspected tuberculosis (not because of discovery in the course of examination of a known contact)—
>
> "1. What may one expect to find in the household associates of this individual examined at this time with respect to: Frequency of infection as demonstrated by the tuberculin test; frequency of tuberculous lesions of various kinds as demonstrated by physical and x-ray examination?
>
> "2. What may one expect to find in the antecedent history of this household with respect to the rate of occurrence of:
>
> "Manifest tuberculosis,
>
> "Death from tuberculosis,
>
> "Death from other causes?
>
> "3. What may one expect to find in subsequent years with respect to the rate of:
>
> "Occurrence of manifest tuberculosis,
>
> "Mortality from this cause and from other causes?"

Although the antecedent history has provided many interesting problems, this phase of the study has been dealt with rather extensively in a previous publication.[1] The present report will be concerned with (A) the prevalence of tuberculous infection and disease, and (B) the risk for associates during the period of observation.

A. PREVALENCE OF TUBERCULOUS INFECTION AND DISEASE AMONG ASSOCIATES OF INDEX CASES

In planning the local program of tuberculosis control, the health officer desires to use the most productive methods of case finding. He needs to know the value of examination of household associates of reported cases of tuberculosis. By studying the prevalence of infection and disease among associates of index cases the value of such examinations will be shown.

The results of examination of household associates in white and colored families at the time of investigation are given in Tables 1 and 2.

this report all data collected since the beginning of the study in December, 1931, and up to January 1, 1941, have been included. The household associates of white index cases totalled 2,094, of which 517 were associates of fatal and sputum-positive index cases, and 1,577 of other manifest and latent apical index cases. In the colored families there were 529 associates, of which 339 were associates of fatal and sputum-positive index cases, and 190 of the other group.

While 7.4 per cent of the household associates of fatal and sputum-positive index cases in white families were found to have manifest tuberculosis at the

TABLE 1

Results of Examinations of Associates in White and Colored Families at the Time of Investigation, According to the Character of Index Case

	White		Colored	
Results of Examination	*Associates of Fatal and Sputum-Positive Index Cases*	*Associates of Other Manifest and Latent Apical Index Cases*	*Associates of Fatal and Sputum-Positive Index Cases*	*Associates of Other Manifest and Latent Apical Index Cases*
Total	517	1,577	339	190
Manifest Tuberculosis	38	38	19	2
Latent Apical Tuberculosis	27	36	11	1
Latent Primary Tuberculosis	191	323	106	42
Negative	100	291	102	50
Not Examined	161	889	101	95

The associates have been studied according to the character of the index case—in two groups namely: (1) fatal and manifest sputum-positive, and (2) other manifest and latent apical. In

time of investigation, but 2.4 per cent of the associates of other manifest and latent apical cases were found to have manifest disease. In the colored families, 5.6 per cent of the associates in

TABLE 2

Percentage Frequency of Tuberculosis of Various Types Among Associates in White and Colored Families at the Time of Investigation According to the Character of Index Case

	White		Colored	
Results of Examination	*Associates of Fatal and Sputum-Positive Index Cases*	*Associates of Other Manifest and Latent Apical Index Cases*	*Associates of Fatal and Sputum-Positive Index Cases*	*Associates of Other Manifest and Latent Apical Index Cases*
Total	100.0	100.0	100.0	100.0
Manifest Tuberculosis *	7.4	2.4	5.6	1.1
Latent Apical Tuberculosis †	7.9	5.4	4.7	1.1
Latent Primary Tuberculosis †	55.7	48.5	45.7	44.7
Negative	29.0	43.7	44.0	53.1

* Percentages are proportions of associates with manifest tuberculosis multiplied by 100.

† Percentages are proportions of persons with latent lesions among those examined (excluding cases of manifest tuberculosis) applied to the percentage of population without manifest disease.

the first group and 1.1 per cent of those in the second group were found to have manifest tuberculosis.*

Therefore, in a tuberculosis control program emphasis should be given to the examination of household associates of a case known to have tubercle bacilli in the sputum or of a fatal case. The examination of contacts of tuberculosis in less severe stages is not as productive.

This study of the prevalence of tuberculosis among associates of index cases demonstrates the practical value of the use of the index case method to the health officer. The designation of the index case as the case which directed attention to the family is readily comprehended. Data on prevalence of the disease among household associates can be collected and analyzed by many workers.

B. THE RISK IN IMMEDIATE FUTURE TO HOUSEHOLD ASSOCIATES OF INDEX CASES

Many important administrative questions can be answered only when the expected future risk for household associates is known. It is necessary to know the approximate number of cases which may occur and when they will probably occur according to the various types of index cases.

With the use of the index case, the risk of attack has been measured in years subsequent to onset of the index case. To the present the published attack rates have included data from histories obtained at the time of first investigation of the household. However, considerable data have been collected for families under current observation in Williamson County.

The experience for associates in white families is shown in Table 3. In all, associates of fatal and sputum-positive index cases have been followed for 2,364.75 person-years and the associates of the other manifest and latent apical cases for 7,122.0 person-years. Eighteen new manifest cases have developed in the first group and 17 in the second group of associates. The case rate for the associates of fatal and sputum-positive index cases of 7.6 per 1,000 person-years was over three times the case rate of 2.4 per 1,000 person-years for associates of other manifest and latent apical cases.

Similar data are shown in Table 4 for the colored families. Among associates of colored fatal and sputum-positive index cases, 27 new manifest cases have developed, which gives the high attack rate of 20.5 per 1,000 person-years or a rate of 2 per cent per year. This is approximately three times the case rate for colored associates of other manifest and latent apical index cases.

The tuberculosis death rate of 16.7

TABLE 3

Cases, Deaths from Tuberculosis and Deaths from All Causes with Rates per 1,000 Person-years Among Associates in White Families During the Period of Observation According to the Character of Index Case

	Character of Index Case			
	Fatal and Sputum-Positive		Other Manifest and Latent Apical	
	Number	Rate	Number	Rate
Person-Years	2,364.75	....	7,122.0	....
Manifest Cases	18	7.6	17	2.4
Deaths from Tuberculosis	5	2.1	5	0.7
Deaths from All Causes	29	12.3	60	8.4

* In the present report a criterion for inclusion of associates has been added which was not used in previously published reports; that is, only associates are included who were known to have been in household association with the index case when the index case was known to have the disease.

TABLE 4

Cases, Deaths from Tuberculosis and Deaths from All Causes with Rates per 1,000 Person-years Among Associates in Colored Families During the Period of Observation According to the Character of Index Case

	Character of Index Case			
	Fatal and Sputum-Positive		Other Manifest and Latent Apical	
	Number	Rate	Number	Rate
Person-Years	1,315.75	....	751.0	....
Manifest Cases	27	20.5	5	6.7
Deaths from Tuberculosis	22	16.7	2	2.7
Deaths from All Causes	44	33.4	11	14.6

per 1,000, or 1,670 per 100,000 person-years, is extremely high for these associates of the colored fatal and sputum-positive index cases. From these data it is evident that the risk of developing tuberculosis and the risk of dying from the disease is excessive in these colored families.

SUMMARY

The use of the index case method permits a valid comparison of the prevalence of the disease and the risk of attack and of death for household associates of cases of designated clinical types of tuberculosis. From the knowledge obtained through the study of the disease by this method, a sound program can be developed for the control of tuberculosis.

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Procurement and Assignment Service

THE Procurement and Assignment Service for Physicians, Dentists, and Veterinarians has started its machinery to secure 16,000 physicians and 3,000 dentists for the armed forces before the end of 1942, without weakening the medical structure for civil and industrial populations as announced by Paul V. McNutt, Chairman of the War Manpower Commission.

The Connecticut State Department of Health Mental Hygiene Program*

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THE Connecticut State Department of Health began its work in the field of mental hygiene in February, 1920. The initial interest in a mental hygiene program in the department grew out of a conversation held in 1919 between Dr. John T. Black, then Commissioner of Health, and Dr. William B. Terhune, Medical Director of the Connecticut Society for Mental Hygiene. As a result of this conversation, a Division of Mental Hygiene was created in the Bureau of Preventable Diseases, and Dr. Terhune became the first chief of this Division on a part-time basis.

The work undertaken over the ensuing 21 years has varied in emphasis as well as in quantity. Three more or less distinct periods in the development of the program may be discerned.

The first period lies between 1920 and 1929. During this period there were several different psychiatrists who were part-time chiefs of the division. For short periods a psychologist was also employed part time, and there were similar short intervals in which there was a psychiatric social worker on the staff. During this time, the chief emphasis was on educational work. Hundreds of lectures on mental hygiene were given throughout the state, articles were written, and thousands of pamphlets distributed. Many surveys were made of psychiatric facilities available, and of community needs. One of the most valuable pieces of work done, was a demonstration of the supervision of parole of state hospital patients by the use of psychiatric social workers. This was shortly taken over by the hospitals and has been maintained since as an integral part of the hospital function. During this period, there were two intervals when a psychologist was employed part time to give mental tests to some 689 children in the county homes.

The second period in the development of the mental hygiene program falls between 1929 and 1935. In 1929, sufficient funds were secured for a full-time chief of the division and for two psychiatric social workers. In 1931, the division was raised to the status of a bureau in the department by legislative enactment. The services of the social workers, or mental hygienists as they are classified in Connecticut, were not maintained throughout the entire period because of reduction in budget as a result of the depression in 1933.

Great emphasis was placed on the educational program, and a large number of lectures were given throughout the state. There were numerous articles and radio talks. Many new pamphlets were bought or prepared and widely distributed. A program of psychiatric clinics for children was inaugurated. These were held in various towns by arrangement, but this type of schedule of clinics did not permit routine fol-

* Read before the Health Officers Section of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 14, 1941.

low-up treatment of cases. As a result, these clinics were largely diagnostic. Children were examined, and recommendations left with responsible people in the various communities. Six hundred and nineteen cases were examined during this period.

The third period in the development of the department's mental hygiene program lies between 1935 and the present date. The 1935 general assembly restored the former budget, and in 1936 Social Security Funds became available to augment the staff of the bureau. The major activities during the past 6 years have been: (1) the clinical program, (2) the educational program, (3) participation in the activities of various community organizations, (4) licensure and inspection of the private nervous and mental hospitals, (5) activities in connection with war emergency. These functions will be described individually.

The clinical work of the bureau is by far its major activity. All of the time of the professional staff goes into this work except that of the director, who gives some clinical service. The professional staff at this time consists of 2 psychiatrists, 1 psychologist, and 4 mental hygienists. Funds have been recently appropriated for an additional psychologist.

The clinical program conducted at the present time is an active psychiatric treatment program for children. It was felt that adult clinics were less close to the field of prevention than clinics for children. It was also believed that better results could be obtained with children in terms of the money available, and that a psychiatric program for adults would be better if it were developed in connection with the general hospital and dispensary. An active treatment program for children was instituted because diagnostic clinics had been tried with not too encouraging results. People in the various communities were as a rule not capable of carrying out recommendations left with them after diagnoses had been made. Furthermore, initial enthusiasm for mental hygiene work became stifled upon the realization that the disturbing behavior of the children referred had to be dealt with in spite of attached diagnostic labels.

Psychiatric work with children had developed over a period of years. Under the leadership of the Commonwealth Fund and the National Committee for Mental Hygiene, a practical clinical organization and methods of work had evolved. Such psychiatric clinics for children were, for the most part, known as child guidance clinics. The chief characteristic of these clinics was the utilization of three specialized professions in an integrated attack upon the various behavior and personality problems of children.

The problem of developing such a clinical service in the Bureau of Mental Hygiene resolved itself into one of the distribution of this combined technical service to smaller units of population than could afford or utilize these services on a full-time basis. It is impossible for the smaller communities to secure properly qualified psychiatrists, psychologists, and psychiatric social workers in the proper ratio to one another and for the limited amount of time for which the population has need. Attempts have been made to use one or another of these types of professions to do the whole job. While each can do certain work independently, the chief advantage of the child guidance clinic is lost, namely, the integration of all of these into a clinical attack upon the problem. The use of unqualified or poorly qualified personnel is more wasteful than in almost any other type of work.

The experience of the National Committee for Mental Hygiene had been that a clinical unit could be locally supported and utilized to full capacity

in communities with populations between 200,000 and 300,000. Experience in clinical work with children had shown that 90 to 95 per cent of all children coming to the child guidance clinic could be treated if they could return as often as once a week for treatment interviews, and a considerable proportion of the children required less frequent visits.

With these facts in mind, the bureau organized regular weekly clinics in areas of approximately 50,000 population. To have attempted to serve too large a population in relation to professional time available would have resulted in the treatment service rapidly shifting into diagnosis. The areas chosen were, however, not fixed by geographical boundaries, as this would have raised questions of eligibility for the service based upon residence on one side or the other of an imaginary line. In most rural and semi-rural areas of approximately 50,000 population there is usually a larger or smaller town which serves as the functional center of the population. Shops, recreational facilities, and various community services are found there. Transportation facilities radiate therefrom. The weekly clinics were located at such points in the various areas chosen. Clients might choose which of adjacent centers was personally more convenient. The areas chosen were based on initial interest shown and lack of other comparable facilities within any reasonable distance. Experience has indicated that the majority of children came from a radius of 15 to 20 miles of the clinic center. However, in the past 6 years, 1,900 cases have come from 116 of the 169 towns in the state. This is not to say that the needs of these 116 towns have been met. It merely means that only the most urgent cases have been brought from the towns more remote from the clinic centers. Experience has shown that a psychiatric clinic for children operating on a 1 day a week basis does, in fact, serve a population of roughly 50,000.

The measurement of the results of such a clinical program is impossible in the terms by which public health people usually measure progress in the prevention of disease. Until the various types of mental disorder are made reportable, and until preventive work is conducted on a much greater scale, any rates showing the effect of such work on the incidence of mental disease are meaningless. Hospitalization rates are affected by too many other and more heavily weighted variables to give any satisfactory answer. Those working with individual cases can make subjective estimates of improvement in the cases seen. These estimates indicate from 60 to 70 per cent of the cases improved. It must be remembered, however, that, though the clinics are operated on a treatment basis, many cases are sent in for diagnosis and recommendations only. This is especially true of dependent and neglected children coming before the court for commitment, to a certain extent for delinquent children, and largely for those crippled children where the orthopedic program to be undertaken hinges upon the psychiatric diagnosis. An indirect way of judging the results of the program is by the demand made by professional and lay organizations for an extension of the service. The amount of such demands, if they could be satisfied by the bureau, would necessitate about five times the present staff.

The bureau has made one attempt to measure the results of its clinical work. A study was undertaken to see what if any savings were effected as a result of the clinical program. All cases during a particular year were reviewed with the idea of determining those for whom institutionalization would have been necessary except for the work of the bureau. During the year chosen, 477 children were seen for diagnosis and treatment. Sixty-six cases were found in

which there was practically no doubt as to probable institutionalization. Commitment proceedings had already been started on 29, plans for commitment had been made by family or agency on 19, and, of the remaining 18, it was the unanimous opinion of the staff that they would have had to go to various institutions. The particular institutions to which these children would have gone was determined, the per capita costs of these institutions obtained, and the average length of stay of patients in the various institutions ascertained. The total probable cost of hospitalizing these 66 cases was then estimated at just short of $200,000. The expenditure of the bureau for the year was $28,641.25. If the cost of institutionalization of the children for just this particular year is estimated, it comes to $43,294. No effort was made to estimate the costs of the other 411 children who presented various behavior, personality, or educational problems, though the greatest number of improved cases belonged in this group.

The educational work of the bureau has been conducted as a part of the general program of public health instruction. In all lectures, articles, and radio talks, the point of view of the psychobiological nature of the individual has been stressed. This orientation fits in easily with any specific health instruction pertaining to the care of the structural aspects of the individual. For professional groups dealing with children, lecture courses have been given which would assist them in their handling of behavior and personality problems. The bureau also distributes a large number of pamphlets. One of these, published by the bureau, has been sold in considerable quantities outside of the state and nation during the past 12 years.

The professional staff of the bureau engages in a variety of activities which may be classified as participation in community activities. Considerable work is done on various committees, and in many instances this may be of more far-reaching significance than the treatment of any specific case. It is particularly important that when general policies are being established which affect the lives of large numbers of children, the effect of these policies on mental health should be considered. Participation in various professional meetings might be considered a part of the educational program. Various state departments call upon the bureau for advice. The bureau, as a matter of practical necessity, serves as a clearinghouse for all sorts of individual inquiries regarding mental disease, facilities for treatment, legal procedures involved in the care of mental patients, and a host of other services.

In 1935 the General Assembly passed an act requiring that the private mental hospitals obtain a license from the Connecticut State Department of Health, and directing the Public Health Council to establish a sanitary code for their regulation. The duty of inspecting the hospitals and seeing that the regulations were carried out became the responsibility of the Bureau of Mental Hygiene. There are 16 private mental hospitals with approximately 1,200 beds. As a result of this activity, there has been considerable improvement in the plant, general sanitation, and in the medical and nursing care of these institutions. The matter of fire hazard was one of the most urgent problems at the beginning, but all the hospitals very shortly met fire regulations. A very few unsatisfactory hospitals have been eliminated. Various complaints about the hospitals are made from time to time. These are all investigated by the bureau and, where the complaints are warranted, remedial measures initiated.

Since January, 1941, the bureau, like so many organizations, has taken on new duties and responsibilities in con-

nection with national defense. At the request of the Medical Director of the State Selective Service, the bureau set up machinery for checking the names of registrants against various state files where there might be evidence of previous neuropsychiatric disability. Through the coöperation of various state departments and the state hospitals, this central checking process in the bureau was possible.

As of August 1, 1941, some 24,000 names have been checked and 3 per cent of these have been forwarded to the State Selective Service Office for deferment or other disposition. During this period, the director of the bureau has acted as chairman of an advisory psychiatric committee to the Medical Director of Selective Service. This committee has helped to work out procedures for more and better psychiatric examinations of registrants, has initiated an experiment in large scale psychiatric examinations, and planned a section of the annual meeting of the State Medical Society for local board examiners.

During the recent session of the General Assembly, a State Defense Council was created. Since June, 1941, the director of the bureau has served as a member of the Welfare and Community Activities Committee of the Council. Tentative plans of the Medical Committee of the Council are that, in the event of evacuation of children, the bureau would be responsible for the organization of the psychiatric services needed for an expected 10 or 15 per cent of emotionally disturbed children.

This, then, is a brief summary of the major activities of the Bureau of Mental Hygiene of the Connecticut State Department of Health. The clinical service is the activity requiring the largest amount of professional time. The needs of the state for this service are not yet nearly met. This, we believe, can only be done through the addition of new clinical units.

The Expanded Rôle of the Sanitarian*†

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IN the field of environmental sanitation in the local health program our concepts of service have undergone a remarkable change in recent years. Our increasing knowledge of the etiology of disease and control of morbid conditions has called for changes of methods and a shifting of emphasis, activities, personnel, and point of view. The attitude of the people in this country toward the responsibility of the government—federal, state, and local—in public health is crystallizing toward a more rational widespread public health program. While it is clear that there is this steadily increasing demand on the part of the public for a more comprehensive program, there is likewise developing a demand for an improvement in the quality of the services rendered. Such factors are having a tremendous influence on the development of the sanitation program and call for an understanding of the rôle the sanitarian shall play in the expanding program of local health service.

In a discussion of the rôle and qualifications of sanitation personnel in the local health program there is generally a divergence of views. It appears that these discussions take two trends; that is, there are those who approach the problem from the theoretical and academic standpoint and those who look at it from an intensely practical viewpoint. Those who look at this problem from the practical standpoint consider there is a need for the services of the sanitarian in local health service, and where adequate, intelligent, technical administration and supervision are provided either locally or through district or state sources, the rôle and usefulness of such personnel are expanding. Those who feel that only personnel with public health engineering training have a place in the sanitation program of local health departments are inclined to be too theoretical and lose sight of many existing factors which make such a conclusion impracticable, unnecessary, and perhaps unwise.

In considering the utilization of the sanitarian it appears that three conditions are vitally necessary to insure the proper expansion of the sanitation program of the local health department to furnish the technical services our present knowledge will permit and to meet the demands of the public for the type and quality of services they have reason to expect. These conditions are: (1) a clear understanding of the nature and scope of environmental sanitation; (2) a realization of the responsibility for the technical administration and supervision of the sanitation program; and (3) a proper coördination of the services rendered by various types of personnel.

Engineering may be broadly defined as the utilization of materials and forces of nature for the benefit of man. The employment of these materials and

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* Read before the Southern Branch American Public Health Association at the Tenth Annual Meeting in St. Louis, Mo., November 11, 1941.

† The use of the term "sanitarian" in this paper is intended to apply to sanitation personnel of the essentially local rural health services who do not have public health engineering training and experience.

forces in the adjustment of the environment to man primarily for the protection and promotion of public health has developed into a specialized branch of engineering termed "public health engineering." This branch of engineering, "includes the public health aspects of all types of environmental conditions whose control is based upon engineering principles regardless of the magnitude or technical difficulty of the individual problems involved."[1] The recognition, therefore, "that environmental sanitation problems—whether small or large, simple or complicated—are fundamentally engineering in character"[1] leads to the conclusion that the nature and scope of environmental sanitation requires engineering training in the solution of the problems involved regardless of the qualifications of the personnel who render sanitation services in the field.

In the technical administration of the sanitation program in the local health department it is felt there is not yet as clear a realization by the public health engineer of his responsibility thereto as is his feeling that the problems involved in sanitation are of a public health engineering nature. Furthermore, many health officers do not appreciate the need for engineering training as a prerequisite to proper planning and supervision of sanitation programs. Obviously, unless those in administrative positions realize their responsibility in providing proper technical supervision of these activities the task will be performed by others, presumably less qualified by education and training. Under such conditions those engaged in local sanitation service, whether inexperienced public health engineers or sanitarians, must develop policies and procedures without benefit of the guidance of experienced public health engineers. In discussing the apparent failure of sanitarians in a certain state, an able public health administrator recently stated in a private communication: "I would naturally expect them (the sanitarians) to fail in that state for the lack of intelligent leadership in the state health department. My experience has demonstrated thoroughly to me that, where a state had an excellent division of public health engineering with constructive leadership interested in improving environmental sanitation, sanitarians had played a most important and necessary rôle." Much confusion now existing in both the administration and performance of the local sanitation program could be eliminated if a proper realization of professional supervision could be established.

In most successful organizations there is a clear understanding of the particular functions of the various persons making up each organization. In each case persons are assigned responsibilities commensurate with their basic training and ability, all performing their allotted tasks under the technical guidance and general supervision of basically qualified individuals. For reasons of economy and efficiency any professional organization must supplement the services of its basically qualified workers by assigning specific functions to sub-professional workers who through training and experience have demonstrated ability to perform such functions efficiently under adequate supervision. Such persons obviously should not be assigned tasks which depend upon professional knowledge and experience they do not possess. Since such procedures find ample justification in various fields of medical and engineering endeavor, are not the same principles applicable to the proper functioning of a local sanitation program? Is it not possible, therefore, for the sanitarian with proper educational qualifications, basic training, and experience to perform specific assignments in the local health program

under specified procedures and adequate professional supervision? If the answer to these questions is in the affirmative, it appears evident that the rôle of the sanitarian has been and will be further expanded.

In trying to determine the degree to which personnel with professional qualifications should be employed for local health service, one is confronted with a number of practical phases of the problem which must be considered. The type and kind of public health engineering problems encountered in the average rural county in the South frequently are not of sufficient magnitude to require individual or independent solution. In such areas a public health engineer is not long satisfied performing chiefly routine services. Also, in these cases, budgetary limitations too often mitigate against the employment of such personnel who would remain for a sufficient length of time to develop a program of full value. Frequent shifting of personnel is not conducive to real accomplishments nor will the public give its best support to the health department which has a constantly changing group of workers. These are considerations which are vitally important in the program of local health service and have a direct bearing on the use of the sanitarian in this service in many areas throughout the South which are predominantly rural.

The recent use of Social Security funds to make available training courses for sanitarians has had a real influence on the quality of persons seeking employment in environmental sanitation. This, together with more rigid qualifications applying to persons seeking entry into this field, has elevated the sanitarian's position to a more useful one than formerly and has expanded his opportunities for service.

The sanitarian's rôle is being further expanded through the broader program of local sanitation work resulting from better coverage of previously recognized problems and also the appearance of new problems. Examples are the more intensive programs of school sanitation, of food control, and the relatively recent problem of typhus fever control. The type and quality of sanitation service rendered by the progressive local health department today bears but little resemblance to that of a decade or two ago.

There is a growing realization on the part of engineers of state health departments of their responsibility for the proper guidance and supervision of the local sanitation program. This tends toward a broader program in this field and also makes it possible for the local sanitarian to assist with certain difficult and technical activities which formerly have been reserved for state handling. This provision of better technical guidance and supervision is expanding the usefulness of the sanitarian and makes it possible for the local health department to render a more adequate sanitation service to the public than formerly.

With the improvement of the quality of sanitation services there are indications of an increasing interest on the part of the health officer in the duties and responsibilities of the sanitarian. This increasing interest is having its influence on a closer coördination of the activities of the various personnel of the health department which in turn enables the sanitarian further to extend his usefulness.

The progress made in public health work in recent years has greatly expanded the program of the well organized local health department and has demonstrated the value and importance of the sanitarian's activities. This expansion calls for more technical services from the state health department and has clearly shown the need of adequate and integrated supervision. Where

this supervision is not being adequately supplied, the local sanitation program suffers and the sanitarian himself, without this leadership, cannot be as effective in his efforts.

While the sanitation program has been broadening, there has not been, in many cases, a corresponding increase in personnel adequately to handle the work to be done. A deficiency of personnel results in too much superficial effort, spreads services so thin that supervision cannot be efficient, and decidedly limits the effectiveness of the sanitarian. Many failures to produce quality accomplishments in sanitation are due to a lack of sufficient personnel regardless of improvement in the qualifications, energy, and enthusiasm of those involved. The rôle of the sanitarian would be greatly enhanced and the services he is supposed to render would be of much better quality if a more rational method were universally used in determining the number of such personnel required adequately to serve a given population or size and kind of area.

Though there are still many inadequacies in the sanitation service being rendered in different areas of the country, there have been many improvements in the quality of personnel engaged in this endeavor; improvements in technical supervision being rendered to local health services; a broadening of the sanitation program, and correspondingly a greater opportunity for the competent sanitarian to display his rôle of usefulness. There is a constantly increasing interest and demand on the part of the public in regard to improved environmental sanitation, and an apparent, greater interest on the part of the health officer in the rôle the sanitarian should play in the entire public health program. These conditions seem to indicate an expanding rôle for the sanitarian in the type of health program being generally developed in the rural areas throughout the South.

REFERENCE

1. Report of the Committee on Coördination of Public Health Engineering Activities, American Public Health Association. *Year Book*, 1940–1941, pp. 63–67.

Use of Alum-Treated Pertussis Vaccine, and of Alum-Precipitated Combined Pertussis Vaccine and Diphtheria Toxoid, for Active Immunization*

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THE study of active immunization against pertussis, in Grand Rapids, Mich., has been the subject of several reports.[1, 2, 3] Field Series I, comprising 4,212 children, was the subject of a paper read at the meeting of the American Public Health Association in Kansas City, 1938. The total quantity of vaccine was 70 billion organisms given in four weekly subcutaneous doses of 1, 1.5, 1.5, and 3 ml. respectively, the last amount given in two bilateral injections. The pertussis incidence in the vaccinated group was 2.3 per 100 person-years, in comparison with 15.1 among the unvaccinated controls. The secondary attack rates [3] were calculated for all the susceptible children in the families in which pertussis occurred and found to be 36.4 in the vaccinated group in comparison with 92.0 in the unvaccinated group, in the age band 1 to 6, inclusive. An indication of what has happened in the series since it was closed for compilation of records in November, 1937, is found in an analysis of pertussis cases reported to the Grand Rapids Health Department. A tabulation of these reported cases was made from the beginning of the study in 1934 through December, 1940, and compared with those cases discovered in the field study. The results are shown in Table 1.

Of 2,074 cases of pertussis reported to the City Health Department during the period of study, 181 were found among the study children of Series I; 8 in the vaccine group, and 173 among the unvaccinated controls. From the close of the study through December 31, 1940, there were 1,353 cases reported to the Health Department of which 117 were found among the study children; 10 in the vaccinated group, and 107 in the control group. The relatively larger difference in the ratio of cases in the test and control groups, when based on those reported than when determined by the field study analysis, is easily explained by the case histories available in the study records. In general, only the clinically typical

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The study received a grant of Maternal and Child Health funds from the Michigan Department of Health.

‡ In coöperation with the City Health Department of Grand Rapids, Mich., Dr. C. C. Slemons, Health Officer.

TABLE 1

Field Series I. Pertussis Cases Among the Children of Study Series I, Which Were Reported to the City Health Department

Found and Reported Cases of Pertussis	Study Period: Mar. 1, 1934, Through Oct. 31, 1937				After Study: Nov. 1, 1937, Through Dec. 31, 1940			
	Control Group	Vaccine Group	Total	C/V Ratio	Control Group	Vaccine Group	Total	C/V Ratio
Found by regular visiting in study Series I	348	52	400	6.7	Study series terminated			
Reported to City Health Dept. among children of Series I	173	8	181	21.6	107	10	117	10.7
Total reported cases for whole city during same period	...	..	2,074	....	...	..	1,353	....

cases were reported, the milder ones were not.

After completion of Field Series I, which gave good evidence of an immunizing antigen in the vaccine used, it seemed logical to investigate certain problems related to the type of vaccine and dosage schedule from the standpoint both of protection and practicability. In Field Series II, the object was twofold: first, to test the efficacy of a smaller quantity of vaccine than that used in Series I but given over a longer period of time; and second, to test an alum-precipitated vaccine preliminary to its combined use with diphtheria toxoid in a study of simultaneous immunization against pertussis and diphtheria. In Field Series III, the use of alum-precipitated, combined pertussis vaccine and diphtheria toxoid is being investigated.

FIELD SERIES II. ALUM-PRECIPITATED COMPARED WITH "STANDARD" PERTUSSIS VACCINE AS AN ACTIVE IMMUNIZING AGENT

GENERAL PLAN OF INVESTIGATION

The study area, the method of entry and withdrawal of test and control children, the plan for obtaining follow-up information, and the system of records, were all essentially as described for Field Series I.[2]

Selection of test and control groups—The age group under study was defined as including from 6 months up to but not including the 3rd birthday. The children were presumably susceptible, that is, with a record of neither previous vaccination against pertussis nor an attack of the disease.

As in the first field series, the vaccinated group was made up of children who were brought to the city immunization clinic for pertussis vaccination. The receiving nurse designated the entry history blanks alternately for alum and standard vaccine, and the injected children were entered as of the date of last injection. The control children, as in Series I, were designated at random from the city department of health immunization file of preschool children. After the information blanks were received from the clinic for a group of children who had completed their immunization, an approximately equal number of children, within the age group of the study and in the same districts as the injected children, were called on by the nurses for verification of their histories and suitability for inclusion in the study. These children if found to be presumably susceptible were entered as controls as of the date designated. There were only 40 col-

TABLE 2

Field Series II. Number of Children and Average Experience in Months, According to Reason for Withdrawal from Study

Reasons for Withdrawal	Number of Children				Average Experience in Months			
	All Groups	Vaccine Groups		Control Group	All Groups	Vaccine Groups		Control Group
		Alum	Standard			Alum	Standard	
All reasons	2,751	655	993	1,103	16.0	18.6	16.1	14.4
End of study	1,533	441	668	424	20.9	22.4	19.4	21.6
Pertussis	158	16	23	119	17.4	17.7	14.1	18.0
Moved	658	188	281	189	9.6	10.0	9.3	9.8
Vaccination of controls	355	...	...	355	7.4	....	....	7.4
Other *	47	10	21	16	6.9	9.5	5.5	7.3

* Includes 4 deaths from other causes in the control group, and 2 deaths in each of the other groups.

ored children in the whole series and they are tabulated along with the others.

Period of observation—The study period for the series extended from January 1, 1938, through December, 1940. The period of observation for any particular child was the number of months from entry to withdrawal. A record was terminated for any of the following reasons: attack of pertussis; moved out of study area; vaccination of control; death; a few miscellaneous reasons, such as lack of coöperation; and, finally, close of study December 31, 1940, for compilation of records and analysis. The numbers of children withdrawn for various reasons in the vaccinated and control groups, and the average experience per child in each group, are shown in Table 2.

Comparison of vaccinated and control groups—It is well recognized as pointed out by Bell [5] that it is impossible to select identical study groups, and that, even if it were possible to make all attributes identical at the moment of selection, they would not remain so. An effort was made, however, as previously described, to obtain reasonably comparable groups by designating in the control group presumably susceptible children of the same age and geographical distribution as the vaccinated children. In Table 3 a comparison is given of several factors which seem to have some obvious relation to comparability between groups.

The standard vaccine and control groups are seen to be approximately the same size. The alum vaccine group, according to method of choosing children for vaccination, should be the same as the standard. The reason for its smaller size is to be found largely in the shortage of alum vaccine supply at one period in the study, at which time the injections were continued with

TABLE 3

Field Series II. Comparison of Vaccine and Control Groups with Respect to Factors Related to Selection

	All Groups	Vaccine Groups		Control Group
		Alum	Standard	
(a) Number of children	2,751	655	993	1,103
(b) Mean length of experience in months	16.0	18.6	16.1	14.4
(c) Mean age at entry in months	14.0	13.7	13.8	14.4
(d) Males per 100 females	111	107	114	111
(e) Average interval between nursing visits	2.7	2.7	2.8	2.6
(f) Per cent attacked by measles, scarlet fever, and chicken pox	8.1	6.4	8.1	9.1
(g) Upper respiratory infections other than pertussis, per 100 person-years	42.8	45.9	42.0	41.4

standard vaccine. The records of children who received both types of vaccine were eliminated from the analysis.

The somewhat shorter average experience of the control children in comparison with vaccinated children is explained by the withdrawal of many because of pertussis vaccination. There is no real difference in the mean age of the groups, in the sex ratio, or in the average interval between nursing visits. Finally, the incidence of scarlet fever, measles, and chicken pox, as well as the relative frequency of upper respiratory infections other than pertussis, indicates that the opportunity for exposure to some of the common childhood diseases was approximately the same in the vaccinated and control groups. The differences are within the limits of sampling variation.

A comparison of the number of three-person families, that is, of families in which it may be assumed there is only one child, suggests some difference between the vaccinated and control groups. Of the families with vaccinated children, 47 per cent were three-person families in comparison with 20 per cent of the families of the control children.

VACCINE USED *

"Standard" pertussis vaccine—The term "standard" vaccine is applied to the type of product used in Series I,[2] since the results obtained with it form the basis for comparison with the results of subsequent study series. This vaccine was a 10 billion per ml. suspension in saline of *Hemophilus pertussis* organisms with smooth characteristics, as indicated by tests just previous to their use. The killing agent was merthiolate.

Alum-precipitated vaccine—A suspension of *Hemophilus pertussis* was prepared just as for the standard vaccine used in Series I.[2] It was then precipitated with alum, essentially as described by Harrison, Franklin, and Bell,[4] and by Bell,[5] by the addition of 1 per cent potassium alum in the presence of 0.27 per cent sodium bicarbonate.

A point worthy of comment is the ease and speed with which the precipitated vaccine shakes into a homogeneous suspension.

Dosage schedule—A total of 3 ml. of vaccine was given in 3 subcutaneous injections of 1 ml. each, alternately in the two arms, with an interval of 1 week between the first and second, and an interval of 4 weeks between the second and third injections.

Immediate reactions to the injections—The immediate reactions after injection of the standard vaccine in this series were of no consequence. In general, there was a slight local reaction, with the formation of subcutaneous nodules which often persisted for several weeks. Following the injection of alum vaccine, the subcutaneous nodules were a little more marked. In one instance, a sterile abscess occurred. Bell[5] observed that such a reaction may be associated with a too superficial injection.

DEFINITIONS WITH RESPECT TO DIAGNOSIS, SEVERITY OF ATTACK, AND EXPOSURE

The same definitions were used for Series II as for Series I. Primarily, the diagnosis of pertussis in study children and in source cases was based upon a detailed case history taken by the nurse. All available supplementary information was used in making the final decision, such as the judgment of the attending physician or members of the health department, cough plate findings, and records of exposure. An attack was considered *moderate* if the child had characteristic whooping and

* The vaccine was prepared in the Biologic Products Division of the Michigan Department of Health Laboratories, Dr. J. T. Tripp, Associate Director.

vomiting, an uncomplicated disease duration of approximately 4 to 6 weeks, and no evidence of marked interference with nutrition. In a *severe* attack the paroxysms of coughing and whooping were unusually severe and frequent, there was marked loss in weight or complications such as bronchopneumonia or prolonged bronchitis. The *mild* attack had only occasional whooping or vomiting, no obvious interference with nutrition, and usually lasted no more than 4 weeks. Under *very mild* attacks were included coughs of not more than 3 weeks' duration in which characteristic symptoms were absent and the diagnosis depended upon either a record of definite exposure or positive cough plate findings. The average interval between onset of attack and the first visit for obtaining the history was 1.8 months. Over 82 per cent of the histories were secured within 2½ months after onset of first symptoms.

Exposures in this report are tabulated as occurring in own household or outside of own household; that is, familial and community exposures, respectively. Each recorded exposure is based upon exposure to a source case in which the diagnosis was established on the basis of a written case history and under the same criteria used for the attacks among the study children. Exposure must have occurred within 3 weeks of the onset date of the source case, and a particular attack was related to a source case only if it occurred within an arbitrarily designated period of 30 days after onset of the source case; that is, the onset date of the attack must be within 51 days of the onset of the source case.

RESULTS OF FIELD SERIES II

Pertussis incidence in vaccinated and control groups—In Table 4 is shown the pertussis incidence in terms of attacks per 100 person-years for alum and standard vaccine groups, and control groups.

Of the total 158 pertussis attacks which occurred in the whole series, 1.6, 1.8, and 9.0 attacks per 100 person-years occurred in alum, standard, and control groups, respectively.

In comparing each of the vaccinated groups with the control group, the difference obviously is significant. Comparing the two vaccinated groups, the difference is not significant.

Comparison of incidence in Field Series II with incidence in Series I—While it is not possible to compare directly the incidence in Series II with the previously reported Series I, it seems possible to make a reasonable comparison through the medium of the control groups. The attacks per 100 person-years in the control groups of Series I and II were 15.1 and 9.0, respectively. If it can be assumed that these rates give a fair indication of normal expectancy within the study groups, the expected incidence in the vaccinated groups of Series II, if the results were similar to those of Series I, can be derived by a simple proportion, since the incidence in the vaccine group in Series I is known to be 2.3. By this

TABLE 4

Field Series II. Incidence of Pertussis in Vaccinated and Control Groups, Based on Period at Risk

	All Groups	Vaccine Groups		Control Group
		Alum	Standard	
Number of children	2,751	655	993	1,103
Person-months experience	43,659	12,142	15,596	15,921
Number of attacks	158	16	23	119
Attacks per 100 person-years	4.3	1.6	1.8	9.0

TABLE 5

Field Series II. Severity of Pertussis Attacks in Vaccinated and Control Groups

Severity Rating	All Groups		Vaccine Groups: Alum		Vaccine Groups: Standard		Control Group	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
All attacks	158	100	16	100	23	100	119	100
Very mild	24	15	7	44	7	31	10	8
Mild	47	30	9	56	9	39	29	24
Moderate	71	45	..	..	6	26	65	55
Severe	16	10	..	..	1	4	15	13

means, the expected number of attacks per 100 person-years in the vaccinated group is calculated to be 1.4. The actual incidence in the alum group was 1.6 and in the standard group, 1.8. In relation to the amount of experience, the difference between the expected and actual incidence is not significant with respect to either alum or standard group. This suggests that both the alum and standard vaccines in a total dosage of 30 billion organisms over a period of 5 weeks may be as effective as standard vaccine, 70 billion organisms, given over a period of 3 weeks.

Severity of attack—As pointed out repeatedly, the rating of the severity of pertussis is rough at best. Every effort was made to avoid bias and to use the same criteria, already outlined, for rating the attacks among vaccinated and control children. It was not possible, however, in many instances to avoid information on the part of the visiting nurse as to whether the patient had had vaccine injections. During the relatively frequent visits, such information was apt to be proffered by the mother.

As found also in Series I, the pertussis attacks in Series II were relatively milder in the vaccinated than in the control children. This is shown in Table 5.

The tabulation indicates further that there was a tendency toward even milder attacks in the alum group in comparison with the standard. It is seen that 100 per cent of the attacks in the alum group were mild or very mild, in comparison with 70 per cent in the standard group and 32 per cent among the controls. A tabulation of severity and mean age gave no explanation of the difference in severity in the vaccinated and control groups. It is pointed out that the numbers of attacks in the vaccinated groups are small and the comparison therefore is considered only as suggestive.

Attacks of pertussis related to exposures—Exposure information was obtained in connection with the regularly scheduled nursing visits so that some of the exposures were recorded before the diagnosis of the attack which may have followed. Other exposures were recorded during the visits for obtaining the case histories on suspected attacks of pertussis.

There were no known exposures, that is, exposures sufficiently well defined to be accepted as such according to the definitions, among 2,751 of the children. Of the remaining 175 children with known recorded exposures, 50 were in the alum group, 52 in the standard, and 73 in the control group. Per hundred person-years experience there were 4.4 known recorded exposures among all vaccinated children and 5.5 among controls. A correlation of exposures with subsequent attacks is shown in Table 6.

Of the children without acceptable records of exposure, 1 per cent contracted pertussis in the alum group, 1

TABLE 6

Field Series II. Proportion of Children Attacked in Relation to Their Exposure Records

Record with Respect to Exposure	Alum Vaccine Group			Standard Vaccine Group			Control Group		
	Number of Children	Children Attacked		Number of Children	Children Attacked		Number of Children	Children Attacked	
		Number	Per cent		Number	Per cent		Number	Per cent
All records	655	16	2.4	993	23	2.3	1,103	119	10.8
No known exposures	605	5	0.8	941	8	0.9	1,028	52	5.1
All known exposures	50	11	22.0	52	15	28.8	73	65	89.0
Exposed in own household	17	7	41.2*	18	9	50.0*	54	53	98.1*
Exposed outside of own household	33	4	12.1	34	6	17.6	19	12	63.2

* Secondary attack rates.

per cent in the standard, and 5 per cent in the control group. Of the children with accepted records of exposure, 22 per cent in the alum group contracted pertussis, 29 per cent in the standard, and 89 per cent in the control group. Following exposure in own household, 41 per cent were attacked in the alum group, 50 per cent in the standard, and 98 per cent in the control group. The number of attacks is relatively small, and the larger percentage following exposure in the standard compared with the alum group is not significant.

Secondary attack rates—Since by definition all the susceptible children of a particular age band in the study families were entered in the study, the secondary attack rates for the vaccinated and control groups are identical with the proportions of children attacked following exposure in their own households, just referred to in connection with Table 6.

SUMMARY OF RESULTS OF SERIES II

The data of Series II indicate protection of a large proportion of children injected with alum-precipitated pertussis vaccine in a total dosage of 30 billion organisms, given over a period of 5 weeks.

The results in no way contraindicate the use of alum vaccine, and form a basis for its trial in combination with diphtheria toxoid.

FIELD SERIES III. ALUM-PRECIPITATED COMBINED PERTUSSIS VACCINE AND DIPHTHERIA TOXOID FOR ACTIVE IMMUNIZATION

The use of several immunizing antigens simultaneously is not new. Even in the injection of a single strain vaccine we know we are introducing several separate antigens, and each will stimulate its own antibody. Experimentally in laboratory animals, many known antigens have been mixed for injection and each found to produce an individual antigenic stimulus. The most familiar example of mixed antigens for human immunization is triple typhoid, paratyphoid A and B vaccine. Smallpox vaccine frequently is given at the time of last injection of diphtheria toxoid although not mixed with it. Recently, combined diphtheria and tetanus toxoid has been used, apparently with success.

With the multiplicity of accepted immunization procedures for children it is logical that appropriate combinations of antigens for active immunization be studied in order to reduce the number

of required injections, thereby lessening discomfort for the child and family, and simplifying administrative procedure. A number of workers have recognized that simultaneous immunization against diphtheria and pertussis would be a particularly desirable and reasonable procedure if its effectiveness could be demonstrated. Bordet,[6] in 1936 announced that he and Ramon had plans for studying the use of such a product.

Since the findings of Series II in no way contraindicated the use of alum pertussis vaccine, it was considered safe and reasonable to test an alum-precipitated, combined pertussis vaccine and diphtheria toxoid. A study group was started January 1, 1940, in comparison with a standard vaccine group and a control group. These three groups comprise Field Series III, the subject of a previous preliminary report by the author,[13] and of this interim report. Except for the substitution of alum-precipitated combined diphtheria toxoid and pertussis vaccine for the alum-precipitated pertussis vaccine, the methods of procedure were the same in all respects as for Series II.

THE COMBINED ANTIGENS *

Preparation of vaccine—H. pertussis cultures were grown and harvested as for standard vaccine, and the merthiolate-killed packed organisms suspended in crude diphtheria toxoid to make a final count of 10 billion organisms per ml. This mixture was precipitated by the addition of sterile potassium alum solution in amounts which ranged between 1.5 and 2.0 per cent. In each case, the exact amount of alum required for maximum precipitation was determined by preliminary titrations of aliquots with varying amounts of alum. The calculated amount of alum was added to the bulk and the precipitate washed twice with saline, and brought back to the original volume with saline and the final product preserved with merthiolate 1:10,000.

The usual sterility, safety, and potency tests for diphtheria toxoid and for pertussis vaccine, respectively, were done before release of the product. Each ml. of the final antigen contained 10 billion *H. pertussis* organisms and the amount of diphtheria toxoid which on antigenic test would produce more than two units of antitoxin in guinea pigs.

Dosage schedule—Just as in Series II, three injections were given, with an interval of 1 week between the first and second injections and 4 weeks between the second and third. The first dose was 1 ml. of "standard" pertussis vaccine, and the second and third were each 1 ml. of the combined antigen. This provided the same dosage of pertussis vaccine as used for Series II, and the dosage of alum-precipitated diphtheria toxoid which is recommended by the Michigan Department of Health.

Immediate reactions—The immediate reactions, in general, resemble those which follow the injection of alum-precipitated pertussis vaccine or alum-precipitated diphtheria toxoid. Records on local and general reactions were obtained on more than 900 children by nurses' visits the day after injection, and further visits if indicated. Reactions were recorded as none, slight, moderate, or marked, according to a predesignated code. Marked local reactions were based upon an intensely sore area of 2 or more inches in diameter. A marked general reaction was defined to include such symptoms as vomiting, or high fever. As recorded, the majority of reactions were none or slight; only a few were marked. In three known instances, a sterile abscess occurred. Under Series II in this paper, reference has been made to the observation of Bell [5] in this connection.

* The combined antigen was prepared by the Biologic Products Division, Michigan Department of Health. A separate communication will be made on the details of technic.

TABLE 7

Field Series III. Diphtheria Antitoxin Titrations in Children Before and After Immunization with Alum-Precipitated Combined Diphtheria Toxoid and Pertussis Vaccine: Number and Per cent at Various Antitoxin Levels

Number of Diphtheria Antitoxin Units	Time of Test in Relation to Time of Injection										
	Group A (6) Before, Only	Group B (19) Before and Once After			Group C (9) Before and Twice After			Group D (111) Once After, Only		All Children (145) All Tests	
		Before	5–8 Mo.	11–20 Mo.	Before	5–8 Mo.	11–12 Mo.	5–8 Mo.	11–14 Mo.	Before	After
	Number										
Under 0.001	6	19	0	0	9	0	0	0	0	34	0
0.001–0.01 *	..	..	1	0	..	0	0	1	0	..	2
0.01 –0.1	..	..	3	3	..	0	0	7	11	..	24
0.1 –0.2	..	..	1	4	..	2	1	8	13	..	29
0.2 –1.0	..	..	6	1	..	7	7	19	31	..	71
1.0 and over	..	..	0	0	..	0	1	5	16	..	22
All tests	6	19	11	8	9	9	9	40	71	34	148
	Per cent										
Under 0.001	100	100	0.0	0.0	100	0.0	0.0	0.0	0.0	100	0.0
0.001–0.01	...	...	9.1	0.0	...	0.0	0.0	2.5	0.0	...	1.4
0.01 –0.1	...	...	27.3	37.5	...	0.0	0.0	17.5	15.5	...	16.2
0.1 –0.2	...	...	9.1	50.0	...	22.2	11.1	20.0	18.3	...	19.6
0.2 –1.0	...	...	54.5	12.5	...	77.8	77.8	47.5	43.7	...	47.9
1.0 and over	...	...	0.0	0.0	...	0.0	11.1	12.5	22.5	...	14.9

* Note: 0.001–0.01 means up to but not including 0.01.

TABLE 7A

Cumulative Results of Diphtheria Antitoxin Titrations Before and After Combined Pertussis-Diphtheria Immunization: Derived from Table 7

Number of Antitoxin Units	Before Immunization		5 to 20 Months After Immunization	
	No.	Per cent	No.	Per cent
Under 0.001	34	100.0	...	....
0.001 or more	..	....	148	100.0
0.01 or more	..	....	146	98.6
0.1 or more	..	....	122	82.4
0.2 or more	..	....	93	62.8
1.0 or more	..	....	22	14.9

IMMUNE RESPONSE OF THE INJECTED CHILDREN

Diphtheria antitoxin—As a criterion of antitoxic level, titrations * were done by the method of Fraser [7] in which mixtures of varying amounts of serum and constant amounts of toxin were tested for neutralization by skin injections in the rabbit. Tests were compared with controls on the same rabbit, in which known amounts of antitoxin and toxin were used. Schick tests of the children prior to immunization have been avoided since they would complicate the interpretation of antigenic response to the combined antigen, due to the antigen in the Schick test material. Titrations have been made with the sera from 34 children before, and from 148 after injection of the combined antigen. The children were selected on the basis of ease of bleeding. The results are shown in Table 7, and cumulated in 7A.

* Diphtheria antitoxin titrations were made by the Biologic Products Division, Michigan Department of Health.

None of the children tested before immunization had as much as 0.001 unit of antitoxin and every one of those tested 5 to 20 months after immunization had at least that amount. As the tabulation indicates, 98.6 per cent of them had a level of 0.01 unit or more, and 82.4 per cent, a level of 0.1 or more. It is of interest to compare these levels with those obtained by Volk and Bunney [8] in the Saginaw County, Mich., study. The determinations in both series were done in the same laboratory. In the age group from 2 to 5 years, 4 months after injection of two doses of alum-precipitated diphtheria toxoid, 97 per cent of the children had at least 0.01 unit, and 53 per cent at least 0.1 unit; at 12 months, the respective proportions at these two levels were 93 and 51 per cent. It should be pointed out that these authors were dealing with rural children, while the children in this study were largely urban. The results indicate that after injection with the combined antigen, the antitoxin reaches fully as high levels as after injection with an equivalent amount of alum-precipitated toxoid given alone.

Pertussis antibodies—As a criterion of response to the pertussis antigen the opsonocytophagic test as reported by Kendrick, Gibbs, and Sprick [9] was used. In addition, some complement-fixation tests and agglutination tests were done. A total of 545 opsonic tests before and 311 tests after immunization are summarized in Table 8.

Of the opsonic reactions before immunization 99.3 per cent were negative or weak; 4½ to 14 months following immunization 79.7 per cent had reactions at least moderately strong, a reaction considered to indicate a significant antigenic response. Of these tests, 180 were on the same children before and after immunization, and the results were in line with those for the whole group, as recorded in Table 8.

Of 27 children tested by the complement-fixation method before injection, the reactions were negative in 26, and doubtful in 1. Six months to 1 year after immunization, 135 were tested; 105 were positive, 5 doubtful, and 15 negative.

Agglutination tests were done on 62 children from 6 to 15 months after completion of immunization and the titers were as follows: 5 were negative in 1:10 dilution; 9 had a titer of 1:10; 35 had titers 1:20 through 1:100; 13 had titers 1:250 or higher.

The results of the complement-fixation and agglutination tests indicate good response to the pertussis antigen.

INTERIM TABULATION OF RESULTS RELATED TO PROTECTION

During the period from the beginning of Series III on January 1, 1940, through September 30, 1941, the study series has come to include 2,194 children of whom 847 were injected with combined, and 380 with standard vaccine, and 967 were unvaccinated controls. The experience and incidence in

TABLE 8

Field Series III. Opsonocytophagic Tests with Pertussis Antigen Before and After Immunization with Combined Diphtheria Toxoid and Pertussis Vaccine

Time of Tests with Respect to Completion of Immunization	*Number of Children*	*Per cent of Children with Opsonic Reaction*	
		Negative to Weak	*Moderately Strong or Strong*
Before immunization	545	99.3	0.7
After immunization	311	20.3	79.7
4¼ to 5½ months	38	13.2	86.8
6 to 8 months	179	20.7	79.3
11 to 14 months	94	22.3	77.7

NOTE: Of these tests, 180 were on the same children before and after immunziation.

TABLE 9

Field Series III. Alum-Precipitated Combined Diphtheria Toxoid and Pertussis Vaccine: Interim Tabulation of Pertussis Incidence in Test and Control Groups

Time at Risk and Attacks	All Groups	Vaccine Groups		Control Group
		Combined	Standard	
Number of children	2,194	847	380	967
Person-years	1,536	610	386	540
Attacks	69	4	6	59
Attacks per 100 person-years	4.5	0.7	1.6	10.9

terms of attacks per 100 person-years are indicated in Table 9.

The children in this Series III are still under observation, additions are being made from week to week, and a final conclusion regarding protection is not being drawn. In this interim report, however, the incidence of 10.9 in the control group and of 1.6 in the standard vaccine group closely parallel the findings of 9.0 and 1.8, respectively, for Series II. Reason for particular encouragement is found in the low incidence of 0.7 for the combined vaccine group.

SUMMARY OF THE RESULTS OF SERIES III

Titrations of diphtheria antitoxin levels before and after injection indicate as good response to the toxoid in the alum-precipitated, combined pertussis vaccine and diphtheria toxoid, as to diphtheria toxoid alone. Also, opsonocytophagic as well as complement-fixation and agglutination tests, indicate that pertussis antibodies are stimulated by the pertussis vaccine.

An interim tabulation of incidence indicates 0.7 attack per 100 person-years in the combined vaccine group in comparison with 1.6 in the standard vaccine group, and 10.9 in the control group.

COMMENT

The question of dosage in relation to pertussis vaccination has received considerable discussion in various articles during the past several years. There is no experimental basis at present for saying that one or another schedule is optimum. It can only be said that with a particular procedure, the results were as found. There has been a tendency on the part of some workers to increase the total dosage as an answer to incomplete protection in any study series, and heavier suspensions such as "double strength" vaccine are in use. The total amount undoubtedly is important, but investigations should cover more thoroughly the other phases of the problem: the type of vaccine, the number of injections and the period over which they are given, and the several questions associated with secondary stimulus. In view of inconclusive data as to the duration of immunity it would seem reasonable to study the advisability of re-immunization just before the child goes to school. Limited experience suggests that a single, relatively small injection may provide an adequate secondary stimulus.

In the study of *total dosage*, the desirability of giving no more than is required for a good degree of protection should be recognized. Investigations of the *type of vaccine* must take into consideration the possible value of toxic products of the pertussis organism as immunizing agents, in the light of the work of Evans[10] and others. Also, the possibility should be explored further of *combining* the pertussis antigen with other antigens, such as diphtheria toxoid. On the subject of *interval* between injections, Faber,[11] Maclean,[12] and others, have called at-

tention to its possible importance. Bell,[5] in his recent study of alum-precipitated pertussis vaccine used a 4 week interval between two injections. His results as well as those included in this paper suggest that the subject can be investigated further with profit. Field Series III in Grand Rapids, for which an interim report is made, is expected to throw more light on several phases of the problem as more experience is accumulated with a dosage schedule of 30 billion organisms given over a period of 5 weeks.

GENERAL SUMMARY AND CONCLUSIONS

The results indicate a good degree of protection against pertussis, following a dosage schedule of 30 billion organisms distributed in 3 injections over a period of 5 weeks. Also, the results appear similar to those in a previous series in which 70 billion organisms were injected over a period of 3 weeks. These observations suggest that the period over which the vaccine is administered should receive as much consideration as the total dosage.

Following the use of alum-precipitated, combined pertussis vaccine and diphtheria toxoid, good antigenic response to both the pertussis antigen and diphtheria toxoid was demonstrated by immunological tests. An interim tabulation on incidence indicates protection against pertussis following injection of the combined antigen.

A more definite conclusion on protection as well as on the question of an adequate dosage schedule awaits further observation.

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Public Health as an Important Part of Pan American Defense*

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IT would seem that there had almost been deliberate forethought in the selection as our meeting place of this beautiful spot called Atlantic City. Both its name and its geographical location bring to mind and to view the great ocean which is the most powerful ally in America's defense, and which at the same time links us with the English people across its waters who, in defending so valiantly their own liberties, serve as a strong bulwark in defense of our independence.

When we are attacked individually, we defend our own lives: individual survival is the basis of this defense. If our families are threatened, we rush to their defense and disregard our own safety; our survival loses its value for us if our families are in danger of being injured or destroyed.

When our country is in peril, we forget even our family duties; we bring or send our sons to the zones of greatest danger and abandon the rest of our families to their own resources. And why? Because, fellow citizens of the American Republics and of the democracies of the world, without liberty and independence for our countries, there is no possibility of happiness either for families or for individuals.

Today we have an even greater duty; we are called upon for an even greater patriotism—for us in the Americas, a continental patriotism, or "American continentalism"; for all believers in democracy in the world, a common concept of liberalism, using the word in the sense of the defense of liberty. Without these qualities, continentalism and liberalism, which must be safeguarded at all cost, there is no possibility of decent living, whether for nations, families or individuals.

This great New World commonwealth of ours, this union of free peoples which here in America had its cradle and has its home, is the one which we must all of us defend, forgetting for the present all other interests, loyalties, and egotisms, so that we may the better preserve them for all time. The peoples of the Americas may have their differences in points of view and even in interests; the political parties of each of our countries may also hold varying opinions and follow different courses for the solution of their problems; the followers of each party and the citizens of each nation may evaluate in their own fashion the conduct of the public officials of their own countries, but today no citizen of any country, no partizan of any party, no party in any nation, and no nation on this continent, can have any other desire than to preserve the rights of liberty, political independence and voluntary confederation, based on the great principle of self-determination, which was won by our forefathers with such long and bloody sacrifice, and which we today enjoy as our inheri-

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tance. These rights are the foundations of our happiness and of the future of the world, and we Americans have the high duty of safeguarding them and of thus assuring the constant progress of civilization.

Nor can we differ in our decision to undergo the greatest sacrifices, to run the greatest risks, even to submit voluntarily to discipline at the temporary cost of our liberty of thought, speech, or action, in order to secure the coördinated and farsighted effort necessary for victory.

When the founders of our various countries proclaimed the rights of liberty which they had to defend by arms, their first act on enlisting in the liberating armies was to renounce all personal interest and ambition, however legitimate, and even their duties toward their families. Still more, they also renounced for the time being the very absolute liberty which they were defending, in order to permit the disciplined organization of the armies of their free peoples. The free peoples of America, in their democratic union of nations in a coöperative effort to defend liberty for their own sakes and for other peoples, must imitate those who, in proclaiming liberty and independence, knew how to adapt these same principles to discipline and interdependence during the struggle for freedom. The victory of democracy will come soon, and at less cost, if we delay no longer in creating an efficient, practical Pan American coöperation.

In the past, union made possible the beginnings of American liberty; the maintenance of unity created the American strength; the attainment of closer unity will successfully defend the liberty of America, and of the world.

As we offer the coöperation of public health to the defense of liberty, we do not forget that the victory of America in behalf of Cuban liberty permitted the consolidation of knowledge and sanitary measures which have made possible the security of life and the advance of civilization and progress in the American tropics.

Recently the President of the United States, in a statement to the press on the four hundred and forty-ninth anniversary of the discovery of America, said, among other things:

> Columbus acted according to the ideal of science. On the basis of assembled data, he arrived at a hypothesis; and he bent every effort to test his theory by actual experiment. The sighting of dim outlines of land in the distance, on the morning of the epochal twelfth of October, proved beyond contradiction his doctrine that dry land lay beyond the ocean; and he thereby opened new avenues of human history.
>
> Neither Columbus nor any other man of science nor any statesman or colonizer could foresee the progress destined to be made by the lands discovered in the west. Nor can we of the present day foresee what further advances will be achieved in the coming years toward the goal of a world permanently at peace, permanently prosperous, permanently free. But we do know that the common striving of all of the countries of the Americas can be a powerful force in the interests of stability, peace, and freedom.

I quote these words of this eminent American statesman with the prediction that the last half century of the first half millenium of the discovery of America will see the culmination of this work in the scientific development which marks the bases of true civilization.

And that this may be so, two great conditions must be met: first, the triumph of liberty in the present world struggle; and second, the vision of a future based on science, but a future in which science is not exploited and falsified for the satisfaction of unhealthy ambitions, but, rather serves as a foundation for the political orientation of the world. And this vision must embrace not only the immediate future, but that which is yet far distant.

If we begin today to speed the fulfillment of the second condition, it will

greatly facilitate the attainment of our present aims.

As the result of new biological discoveries and the work of the organizations entrusted with their application in the conservation of health and the improvement of man, public health has become of extended importance and plays a greater rôle in the solution of the different problems of the individual, the family, the community, and the nation.

The American countries have been faced, and will be faced, with few problems which are equal in importance and urgency to that of defense.

It therefore seems logical that at a meeting of the American Public Health Association, which brings together health officers from all over the continent, we should discuss the manner in which all men dedicated to the national defense of each of their countries and to the joint defense of the Americas may coöperate.

It seems to me that the most important things for us to consider are: (a) the extension of public health work as part of the total defense in time of war, a function for which the term "biological" defense seems appropriate, as covering the different aspects included in our coöperation for defense; and (b) the means which must be employed to make this coöperation practical—the most important question.

In discussing the rôle of public health in defense, I shall omit the work of the medical and sanitary units attached to the armed forces, whose duties are to learn the biological efficiency of their personnel and to conserve and, where possible, to improve it.

The coöperation with which we are concerned forms the second line of this biological defense, and is closely tied up with the units which I have just mentioned, through its two great goals: the health of the individual and the healthfulness of the environment. We have to be much more careful to prevent the development among the civil population of natural or artificially provoked illnesses which might spread to the army and naval forces, and we have to see that the limitations imposed by wartime economy have no repercussions in the causing of other illnesses or in the production of states of low vitality which will injure the "stock" of human power on which the nation must depend for military defense. In addition to this, we assure the training of physicians, so that they will not be lacking in our so-called "first line of defense"—that is so that they may be able to care for all the special needs of the armed forces.

What I have just said is, of course, known to everyone. The second question is how to proceed in order to attain our goals.

First we must remember that the battle is a battle of the whole hemisphere. We must, therefore, mobilize the Pan American Sanitary Bureau so that, while the danger exists, it may maintain an even closer coördinating connection with all the national departments of health and bring to them the best standardization of technics and disciplined coöperation.

We keep in mind that the military and naval forces have bases and will use in their operations certain roads which may be known before hand. Let us maintain the best possible sanitary conditions in the environs of bases and roads most likely to be used by the military forces.

We must also keep in mind the fact that these bases will be for the most part located in tropical zones, although some may be set up in temperate or even frigid regions. Therefore, our physicians and health officers, who may also find themselves at times working under the direction of the army or the navy, must receive special preparation for work in such regions.

We must realize that, just as the former war brought into use the so-called "chemical warfare," so, also, when the countries, now victorious, begin to face defeat the "biological war" of which so much has been said and written may be resorted to. If the armies or rather the commanders in the last war had foreseen chemical warfare, the latter would not have brought so much havoc. Let us be prepared, therefore, for a possible biological war.

The present war is characterized not only by the totality of the methods employed but by the necessity for the most precise coördination to maintain the unity of the whole. The whole civil, medical, and public health organization must stay in close coöperation with the corresponding military and naval agencies. This is true both in the local national organizations as in the Pan American organizations when such are established.

This pleasant meeting in Atlantic City, where the representatives of all the departments of health of America are gathered with the American Public Health Association and the officers of the Pan American Sanitary Bureau permits me to suggest that the Pan American Sanitary Bureau and the United States Public Health Service study these problems, with the coöperation of the fellows and members of the American Public Health Association and of the sanitarians of the Americas whom they deem necessary and appropriate to this collaboration.

"MEN who are occupied in the restoration of health to other men, by joint exertion of skill and humanity are, above all, the great of the earth. They even partake of the Divinity, since to preserve and renew is almost as noble as to create."

Voltaire

The Teacher of Hygiene and Public Health*

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THOSE interested in the success of the health instruction program of the public schools are beginning to demand that hygiene shall be taught by able and well prepared teachers.

This quest for the qualified teacher is an eternal and most perplexing problem. It has practical consideration of the greatest importance for every generation of every century.

What criteria are teachers to use in judging their own capacities as health instructors? What standards are they to use in determining whether or not they have been truly effective in imparting health knowledge, shaping health attitudes, and influencing health habits? What guide is the school administrator to follow in selecting or assigning faculty members for the teaching of hygiene? What factors are health supervisors to have in mind when working for the improvement of instructional efforts on the part of teachers under their direction? These are all significant questions and we must come to grip with them sooner or later.

It is reasonable to say that health educators should have sound training in the fundamental sciences. It is intelligent to demand that they shall have an understanding of psychology and the philosophy and principles of education. It is logical to conclude that health educators should have specialized training and experience in the field of health. It is also imperative to ask: does this preparation make a good teacher? Is it possible that a person can be qualified in these fundamental fields and still be an ineffective instructor? Does successful teaching result from careful preparation or is it a reflection of inborn capacities that must find expression? Does able teaching depend upon a few all-important characteristics or does it result from the interplay of a multitude of tangible and intangible qualities?

SOME NEGATIVE RELATIONSHIPS

It is sometimes just as important to divest the mind of misconception as it is to recognize the truth. A study of the research dealing with the prediction of teaching success mostly tells us what is *not* related to effective instruction.

1. ***Intelligence does not have a significant relationship to success in teaching.*** Most of the studies show a correlation between these two factors of less than .425 and some indicate a relationship of less than .1. In one important study there was a negative correlation of —.035 for high scores and of —.004 for median scores on intelligence tests.[1]

The answer to this astonishing fact is not that intelligence is unrelated to successful teaching, but that teachers as a group are intelligent; hence this factor ceases to have value in discriminating

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between the good and the poor teachers. To put it another way, the minimal amount of intelligence needed for successful teaching is an essential requisite for getting through the teacher training institutions.

2. *Practice-teaching success and later field effectiveness have little in common.* An analysis of 15 investigations covering this point shows a correlation between these two factors of less than .36 in 14 of the studies.

It is difficult to explain this lack of significant relationship between practice-teaching success and later effectiveness in field teaching. On the surface it would appear that student performance in a classroom would be a most valuable criterion by which to judge future teaching success. Perhaps soft-hearted supervising teachers approve students who should not be allowed to qualify for teaching. Probably time and experience ripen the capacities of many who barely qualify in practice-teaching. It is likely, too, that some students with outstanding teaching ability are drawn into administrative or other positions that remove them from the classroom. Whatever the factors are that are in operation, they tend to destroy the value of the practice-teaching experience so far as prediction of ultimate teaching success is concerned.

3. *Scholarship in high school or college is not a good criterion for predicting teaching success.* Sandiford and others analyzed a number of studies of the factors involved in predicting teaching success and found that scholarship is not a dependable criterion.[2] With the exception of the findings of a single investigator the correlations between success in field teaching and high school grades ranged from .08 to .35. The correlation for college grades, with a single exception, ranged from .07 to .50. None of these statistical findings are high enough to have a great deal of significance.

4. *There is a lack of correlation between teaching success and specialization in subject matter.* Odenweller found a correlation of only .281 between these two factors.[1] This study merely substantiates earlier findings. Dr. R. B. Montgomery of the University of Illinois has just completed a study of college hygiene courses and his conclusions are in keeping with earlier studies on this point.[3] Dr. Montgomery says:

> The physician and nurse are without doubt the best prepared in the subject matter but . . . the physician knows the least about educational procedures and, as a result, is often a poor teacher. Several colleges report that they were forced to replace the physician instructors with others. I believe there are three reasons for this: (1) the medical curriculum offers no place for courses in education and most physicians feel that they cannot afford the time to take them later; (2) most physicians mistakenly assume that their knowledge of the subject is sufficient to make them teachers; (3) almost all physicians do not think of their students as very callow youth just out of high school and find that it is difficult to adjust their own methods of thinking to the adolescent level . . . there are very, very few physician teachers.

SOME PROMISING LEADS

Research findings are not entirely negative. Odenweller made a study of 560 teachers in Cleveland on the assumption that if efficiency on the job is recognizable and measurable it is predictable.[1] The teachers in this study were ranked for effectiveness and personality by principals, assistants, and supervisors. Fellow teachers also ranked each other according to personality. A reasonably high correlation of .825 was found between personality and teaching effectiveness when both rankings were made by school administrators. When personality was evaluated by three teachers in the same school building with the instructor being graded, there was a correlation of only .533 between teaching effectiveness as judged by administrators and personality as judged by these teachers.

While this study is not conclusive it reveals the fact that personality apparently has a closer relationship to teaching success than any other single factor that has yet been measured. We cannot attach too much importance to this conclusion because personality itself is a most intangible substance, assuming all forms with all individuals, and being very difficult to measure. Our common sense observations tell us, nevertheless, that some people do have a knack for getting along with others, for attracting others, and for leading others. We are apt to call this capacity personality and let it go at that, since we have learned from experience that personality is not confined to one channel or tabbed with a single label.

Several studies have been made in an attempt to evaluate teacher success from the standpoint of the pupil. Bryan analyzed the ratings of secondary school teachers by about 1,500 junior and senior high school students of New York City, and Cincinnati, Ohio.[4] From this study it would appear that students consider a teacher a good teacher when he (1) explains his subject matter thoroughly; (2) knows his subject matter thoroughly; (3) works hard at his teaching; and (4) is sympathetic to his students.

Hart made a much larger study of student ratings of teachers when he analyzed the opinions of 10,000 high school seniors in 66 high schools in widely distributed parts of the country.[5]

In rank order, the 6 combinations of characteristics considered most typical of the best liked teachers were as follows:

1. Is helpful with school work, explains lessons and assignments clearly; uses examples in teaching.
2. Cheerful, happy, good-natured, sense of humor.
3. Human, friendly, companionable, one of us.
4. Interested in and understands pupils.
5. Makes work interesting, creates desire to work, makes class work a pleasure.
6. Strict, has control of class, commands respect.

On closer analysis these 6 points can be boiled down to 4, namely, (1) teaching skill, (2) personality, (3) interest in pupils, and (4) leadership ability.

It is difficult to state which of these factors is the most significant, but pupils always place a high premium on sympathy, patience, and understanding. It is the teacher who is most concerned about the welfare of his students who takes the pains to explain most clearly, and whose personality is allowed expression through service to these pupils. Such people have leadership ability because young people can recognize and follow those who are genuinely interested in their welfare.

John Frederick Boyes, the English essayist of the past century recognized the value of patience and sympathy in the educational process when he once stated:

> If in instructing a child, you are vexed with it for want of adroitness, try if you have never tried before, to write with your left hand, and then remember that a child is all left hand.

IMPROVING HEALTH INSTRUCTION

The recognition of the personal qualities involved in good teaching is not the solution to the problem of securing better health instruction. It is only part of the solution.

There are two broad methods by which we can improve the quality of teaching in the field of hygiene. The first involves the selection and training of new teachers. The second calls for the improvement of teachers already in the field.

1. *The training of new teachers*—A most serious indictment can be made against most of our teacher training institutions in respect to the preparation of their students in the field of health. At a recent symposium Dr.

Delbert Oberteuffer of Ohio State made this statement [6]:

> . . . the majorty of American professional departments of education are either ignoring this responsibility, or are making well-meaning but futile and inadequate efforts to prepare their students in the appropriate aspects of health education.
>
> The difficulty, however, originates largely in the faculties of the colleges of education. Two years ago, in a study made of professional preparation in physical education, a dean of education in a midwestern university was asked about the school health program in his state. He replied that it was poorly developed, mainly because the school administrators were slow to adopt it. Later he admitted that his school prepared most of those administrators and that rarely did one of these men, who were to become principals or superintendents, ever elect a single course in health education.
>
> None of the courses in health education were required, nor had the thought of requiring such training ever penetrated the thoughts of this dean or his faculty. Also gained in the same study was the impression that of the college presidents, zoölogists, psychologists, sociologists, physiologists, and professors of education interviewed, the group who knew less about the health problem in school life and who cared least about corrective measures were the professors of education.

Even with proper selection and training of teachers in the field of hygiene we can expect at best but a slow infiltration of these new teachers who are qualified for superior instruction. First, because the number of new teachers each year constitutes no more than 10 per cent of the total teaching profession and, second, because the great majority of these new teachers are trained as specialists in other fields than hygiene; so that the number of beginning teachers who are well qualified in the subject matter of health education must be pitifully small. Third, even those teachers with specialized training and all of the personal qualifications for successful teaching, will not be assigned to the task of health instruction. Under our present educational organization we train our teachers as specialists, but it is very likely that only a few will find themselves delegated to the teaching of the problems on which they are best qualified.

2. *The in-service training of health instructors*—There is great promise of improvement when our efforts are directed toward increasing the capacities and skills of teachers who have already been assigned responsibilities in health instruction—first, because the teachers in service greatly outnumber the new arrivals; second, because there will be much less wasted effort in terms of training people for one job and seeing them assigned to other work; and third, because such teachers are most receptive to any form of help that can be given them in solving problems in the field of their immediate responsibility.

A few teacher training institutions have begun to work actively with teachers already in the field. The tide, however, has not yet rolled in that direction. May I suggest that field service courses in which the instructor travels from school to school and from community to community will be commonplace tomorrow?

Such training is a natural follow-up of the earlier preparation that the teacher may have received from a given institution. When the professor of education goes into the classroom to give specific help to the teacher who is grappling with practical pupil difficulties, you can be certain that the quality of both the preliminary training by the schools of education and the classroom effort by the teacher will improve greatly. The next great step forward in the social science of education will come when our educational institutions offer this service.

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The Search for Unity

"IF we are to have a durable peace after the war, if out of the wreckage of the present a new kind of coöperative life is to be built on a global scale, the part that science and advancing knowledge will play must not be overlooked. For although wars and economic rivalries may for longer or shorter periods isolate nations and split them up into separate units, the process is never complete because the intellectual life of the world, as far as science and learning are concerned, is definitely internationalized, and whether we wish it or not an indelible pattern of unity has been woven into the society of mankind.

"There is not an area of activity in which this cannot be illustrated. An American soldier wounded on a battlefield in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur, and a German, Koch, elaborated a new technique.

"In peace as in war we are all of us the beneficiaries of contributions to knowledge made by every nation in the world. Our children are guarded from diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host—the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind. The best that every individual or group has produced anywhere in the world has always been available to serve the race of men, regardless of nation or color.

"What is true of the medical sciences is true of the other sciences. Whether it is mathematics or chemistry, whether it is bridges or automobiles or a new device for making cotton cloth or a cyclotron for studying atomic structure, ideas cannot be hedged in behind geographical barriers. Thought cannot be nationalized. The fundamental unity of civilization is the unity of its intellectual life.

"There is a real sense, therefore, in which the things that divide us are trivial as compared with the things that unite us. The foundations of a coöperative world have already been laid. It is not as if we were starting from the beginning. For at least three hundred years the process has been at work, until today the cornerstones of society are the common interests that relate to the welfare of all men eyerywhere."—from *The Rockefeller Foundation—A Review for 1941*—by Raymond B. Fosdick, President

Sensitivity to Coccidioidin Among Boys in an Eastern Preparatory School

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TUBERCULOSIS surveys of school children frequently reveal a small but significant percentage of persons who fail to react to tuberculin of proven potency, but who show on roentgenological examination calcified nodules characteristic of healed pulmonary tuberculosis. When these findings occur it is usual for the physician to assume that the x-ray findings are indicative of tuberculosis and that the negative skin test indicates that the individual has lost his sensitivity to tuberculin or is anergic. However, recent studies [1, 2, 3] suggest that in some instances the occurrence of a negative tuberculin test and roentgenologically demonstrable calcified pulmonary nodules could be explained by assuming that the x-ray findings represent infection with *Coccidioides immitis* rather than by the tubercle bacillus. Carter [4] and Thorner [3] have pointed out the similarity of the roentgen picture of coccidioidomycosis and primary pulmonary tuberculosis, and Cronkite and Lack [1] have described lesions similar to those of miliary tuberculosis in guinea pigs in which coccidioidomycosis was produced experimentally. A recent survey by Aronson, Saylor, and Parr [5] among some Indians in Arizona has revealed that, in those areas where from 90 to 98 per cent reacted to the intracutaneous injection of coccidioidin, about 15 per cent of tuberculin-negative children had calcified pulmonary nodules, while in areas where such reactions were infrequent or absent, only an occasional calcified nodule was observed in tuberculin-negative cases. These results suggest that the lung findings following infection by *Coccidioides immitis* and those of healed tuberculosis cannot readily be distinguished roentgenologically from one another.

The studies of Gifford,[6] Dickson,[2] Aronson, Saylor, and Parr,[5] and Smith [7] indicate that coccidioidomycosis may be more widespread than is generally appreciated, and stimulated us to make a survey of the students at an eastern preparatory school. All students are examined roentgenologically at the time of their initial medical examination, and all students showing suspicious or definite lesions of tuberculosis are reëxamined annually or at more frequent intervals. The 680 students were tested with 0.01 mg. old tuberculin of known potency and, simultaneously, with 0.1 ml. of a 1:100 dilution of coccidioidin; those individuals negative to 0.01 mg. were subsequently tested with 1.0 mg. old tuberculin. The coccidioidin used in this study was prepared by Dr. Charles E. Smith of Stanford University by growing *Coccidioides immitis* on synthetic culture medium.

This study was aided by a grant from the Carnegie Corporation.

TABLE 1

Initials	Age in Years	Degree of Reaction * to 1:100 Dilution Coccidioidin Jan., 1941	Degree of Reaction * to 1:100 Dilution Coccidioidin April, 1941	Degree of Reaction * to 1.0 mg. Old Tuberculin Jan., 1941	Chest X-ray
G.B.	16	1+	±	Neg.	Neg.
A.B.	16	2+	2+	Neg.	Pos.†
W.D.	15	2+	2+	Neg.	Pos.†
O.G.	15	2+	1+	±	Neg.
D.H.	15	1+	1+	Neg.	Pos.†
F.K.	17	2+	1+	Neg.	Neg.
J.K.	13	2+	±	Neg.	Neg.
N.L.	17	1+	3+	Neg.	Neg.
B.L.	19	1+	1+	2+	Neg.
C.M.	16	1+	3+	2+	Pos.†
J.M.	18	±	±	±	Pos.†
H.R.	16	2+	1+	Neg.	Neg.
L.S.	17	2+	2+	Neg.	Pos.†
J.S.	16	2+	2+	Neg.	Neg.
E.T.	15	±	±	Neg.	Pos.†
J.W.	15	2+	3+	Neg.	Neg.
E.W.	17	±	±	1+	Pos.†

* Edema 5 to 10 mm. in diameter=1+
Edema 11 to 20 mm. in diameter=2+
Edema exceeding 20 mm. in diameter=3+
Edema measuring 5 mm. or less in diameter=±
† *i.e.*, calcified pulmonary nodules present

These students ranged in age from 13 to 19 years, 70 per cent being in the age group 16 to 17 years. Approximately 80 per cent resided in Massachusetts, New York, Connecticut, Pennsylvania, New Jersey, and Ohio, while the remaining 20 per cent represented 26 other states and 13 foreign countries. There were 10 students from Texas, 9 from California, 1 from Arizona, and 1 from New Mexico.

Of the students tested, 26 per cent were positive to 0.01 mg. of old tuberculin, and an additional 2.7 per cent were positive to 1.0 mg., while 17 individuals, or 2.5 per cent, reacted to 0.1 ml. of 1:100 dilution of coccidioidin. These figures are in sharp contrast to those of Thorner [3] who tested 200 children in the Bakersfield, Calif., area and found that 30 per cent of the children in the 0–4 year age group and 40 per cent in the 15–19 age group reacted to coccidioidin, and to those of Aronson, Saylor, and Parr,[5] who found that 89 per cent of 2,355 Indian children living in the southern part of Arizona reacted positively to 0.1 ml. of a 1:100 dilution of coccidioidin. The coccidioidin test was repeated 3 months later with the same preparation of coccidioidin on the 17 students who reacted to the initial test. Similar reactions were obtained in 13 individuals, while in the remaining 4 cases the reaction was less marked than that observed on the initial test. Details of these tests, together with the data on each individual's age, tuberculin test, and chest x-rays are presented in Table 1.

After the coccidioidin test had been repeated, a questionnaire was sent to the parents of the 17 boys who reacted, and answers to the following questions were requested: (1) Has this boy always lived in the state in which he now resides? If not, in what other states has he resided? (2) Has he spent a week or more in any of the southwestern states? If so, in which states and approximately how long in each? (3) If he spent any time in any of these southwestern states, did he have any undiagnosed illness or any illness which was diagnosed as influenza while he was there? (4) Has he at any time in his life had an illness characterized by malaise, cough, fever, rash, joint pains and nodules over the extremities? Data from these questionnaires are presented in Table 2.

TABLE 2

Name	*Residence*	*Ever in Southwestern United States*	*Any Illness in Southwestern United States*	*Never Any Illness Resembling Coccidioidomycosis*
G.B.	New Jersey	No	—	No
A.B.	Ohio	No	—	No
W.D.	Kentucky	No	—	No
O.G.	Texas	Texas	No	No
D.H.	New York	No	—	No
F.K.	New York	No	—	No
J.K.	Maine	California—Several months Texas—1 week Nevada—1 week	Yes	"Glandular Fever"—California
N.L.	Missouri	Arizona	No	No
B.L.	Pennsylvania	No	—	No
C.M.	Ohio	Arizona (9 mos.)	No	No
J.M.	Maryland	No	—	No
H.R.	Connecticut	Arizona (2 wks.) California (2 wks.)	No	"Grippe"—Montana
J.S.	Missouri	New Mexico (2 wks.) Arizona (6 wks.)	No	No
L.S.	Connecticut	Arizona (5 mos.)	No	No
E.T.	Massachusetts	No	—	No
J.W.	Illinois	Arizona (18 mos.)	No	No
E.W.	Missouri	Texas (Several short visits)	No	No

It will be observed from Table 2 that of the 17 cases who reacted to coccidioidin, 9 had lived in or visited one or more of the southwestern states. Only 8, or 1.2 per cent, of the remaining 659 boys who gave no history of residence in the southwestern states reacted to coccidioidin.

Of the 17 boys who reacted to coccidioidin, 12 failed to react to the intracutaneous injection of 0.01 and of 1.0 mg. of old tuberculin. Of this latter group 5 gave no definite medical history suggestive of coccidioidomycosis, although they showed definite calcified pulmonary nodules ranging in size from 2 to 8 mm. in diameter, located well out in the lung fields and in the hilar area; 4 of this group had at no time visited or lived in the Southwest. Of the 17 boys who reacted to coccidioidin, 2 gave a history of an illness suggestive of coccidioidomycosis and 8 had at no time been west of the Mississippi River.

The protean manifestations of infection with *Coccidioides immitis* and the variability in its severity have made it difficult to determine accurately whether or not any of those who have reacted to the coccidioidin test have had clinical evidence of coccidioidomycosis. It is true that all of these individuals have at one time or another had an illness resembling influenza or grippe which in some instances may well have been due to *Coccidioides immitis;* obviously one can only speculate as to the diagnosis in these cases.

SUMMARY

1. Of 680 students at an eastern preparatory school for boys, 17, or 2.5 per cent, reacted to the intracutaneous injection of a 1:100 dilution of coccidioidin prepared on synthetic medium.

2. None of the 17 reactors had been previously diagnosed as having had coccidioidomycosis; however 9 of them had spent some time in one or more of the southwestern states, while 8 had never been west of the Mississippi River.

3. Of the 17 who reacted to coccidioidin, 12 failed to react to the intracutaneous injection of old tuberculin and 5 of these 12 showed calcified nodules on roentgenological examination.

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Home and Farm Safety

A STATE-WIDE educational campaign for Home and Farm Safety was inaugurated in Albany, N. Y., on March 26 by the Division of Public Health Education of the New York State Department of Health. Represented at the Planning Conference were some sixty organizations, including four other state departments.

Unanimously the group voted to develop a state program under the original leadership of the State Department of Health and to arrange a state conference on May 28, in Syracuse. Burt R. Rickards, director of the Division of Public Health Education, was chosen permanent chairman and authorized to set up an advisory committee.

Stanley H. Kershaw, director of the Home and Farm Division of the National Safety Council, Inc., Chicago, under whom the New York State program will be administered as part of a nation-wide campaign to reduce the 37,500 annual deaths from home and farm accidents, set a five point goal for the state as follows:

1. To determine quickly what has already been done about home and farm safety in the state.
2. To perfect state-wide organization with all possible speed.
3. To plan state, county, and community conferences.
4. To disseminate to all participating groups practical information on methods of combating problems.
5. To develop a plan for intensive follow-up work.

In addition to a stimulating program of discussions during the one day state conference in Syracuse, it was planned to have a group of exhibits, among which is featured a "House of Safety."

Isolation of Meningococcus from the Genitourinary Tract of Seven Patients*

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THE isolation of the meningococcus from the genitourinary tract of patients with clinical evidence of gonococcal infection has not been reported in the literature. Epididymitis and seminal vesiculitis as complications of meningitis, however, are not infrequent.[1, 2] Pick,[3] in 1907, isolated a meningococcus at autopsy from the abscessed seminal vesicles of a patient with cerebrospinal meningitis. The organism was differentiated from the gonococcus by carbohydrate fermentation and by serologic methods. Other authors have described the localization of the meningococcus in the genitourinary tract,[4, 5, 6] but the identity of the organism was not established by carbohydrate fermentation. Recently, Branham[7] identified as a Group II meningococcus a Gram-negative coccus that had been recovered from a case of urethritis diagnosed as gonococcal infection.

The present report describes the isolation of Group I meningococci from the genitourinary tract of 7 patients with symptoms of gonococcal infection.

PROCEDURE

In the course of investigations on the survival time of the gonococcus in urine[8] and on carriers in gonococcal infection, 103 strains of Gram-negative diplococci were isolated by standard cultural procedures.[9] Because of the volume of work entailed, further identification by carbohydrate fermentation could not be carried out immediately. In most instances, therefore, the fourth or fifth generation of each strain or organism was preserved in a frozen state at −70° C. for approximately 1 month. The procedure followed was essentially that of Horsfall.[10] The growth from a 24 hour chocolate agar slant was suspended in from 2 to 3 ml. of sterile defibrinated rabbit blood which was then pipetted to a sterile cork-stoppered celluloid tube especially designed to withstand low temperatures. The tube was immersed in a mixture of dry ice and 95 per cent alcohol at a temperature of −80° C., after which it was stored in the freezing cabinet. In some instances, in addition to storage in the frozen state, duplicate cultures were maintained on chocolate agar.

Tests for carbohydrate fermentation were carried out on two different media. One was a tryptic digest agar to which were added 15 per cent ascitic fluid, Andrade's indicator, and a 1 per cent concentration of the desired carbohydrate, i.e., glucose, maltose, sucrose, or lactose. The other medium was Proteose

* Studies carried out in coöperation with the Division of Venereal Diseases of the United States Public Health Service and with the Baltimore City Health Department.

Read before the Laboratory Section of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 14, 1941.

† On leave of absence from the School of Medicine and Dentistry of the University of Rochester as a Fellow of the Division of Medical Sciences of The Rockefeller Foundation.

No. 3 Agar,* in which an autoclaved supernate prepared from an aqueous suspension of dried Bacto * hemoglobin was employed as the enriching substance, and the respective carbohydrates added to yield a final concentration of 0.8 per cent. The indicator was phenol red. The fermentation reactions were carried out on several lots of each type of medium prepared at different intervals.

Seven strains, herein described, which failed to give the fermentation reactions of a gonococcus, were submitted to Dr. Sara E. Branham, of the National Institute of Health, for independent identification. In her laboratory they were identified by means of carbohydrate fermentations, by the type of growth on blood agar, by "halo" production on agar containing antimeningococcal serum,[11, 12] and by agglutination reactions with meningococcal typing serum.

RESULTS

Of 103 strains of Gram-negative diplococci that had been isolated from cases of gonorrhea, or from carriers of the infection, 7 proved to have the characteristics of the meningococcus, as evidenced by the fermentation of maltose as well as glucose. In addition, growth on artificial media was more abundant than is typical of the gonococcus. Independent identification by Dr. Branham verified these findings, and further classified the strains as Group I meningococci.

The fermentation reactions of 5 strains were determined after preservation in the frozen state for 1 month. One strain (De) was tested shortly after isolation, and was not preserved by freezing.† The 7th strain (El) was maintained in duplicate, on chocolate agar as well as in the freezing cabinet.

TABLE 1

Clinical Summary of Cases of Genitourinary Infection from Which Meningococcus Was Isolated

Patient	Age (Yr.)	Sex	Race	Marital Status	Previous Gonococcal Infections No.	Previous Gonococcal Infections Date	Clinical Diagnosis at Time Meningococcus Was Isolated	Date Meningococcus Recovered from Patient	Therapy Prior to Recovery of Meningococcus
Ha	22	F	C	M	1	1940	Chronic cervicitis	1/24/41	Diathermy
Sm A	23	M	C	S	1	1940	Anterior urethritis	2/20/41	Sulfanilamide— 4 days
El	18	M	C	S	0		Anterior urethritis	2/17/41	None
Sm W	18	M	C	S	0		Anterior urethritis; epididymitis	2/ 4/41	None
Pa	22	M	W	S	0		Anterior urethritis	12/16/40	Sulfacetamide— 8 days
No	29	M	W	S	2	1933–1936	Anterior urethritis	1/11/41	Sulfacetamide— 4 days
De	25	M	W	M	1	1940	Anterior urethritis	3/29/41	Sulfapyridine —16 days Sulfacetamide—10 days Sulfathiazole — 7 days

The unfrozen agar culture fermented glucose only, while that preserved in the frozen state fermented both glucose and maltose, and was, therefore, identified as a meningococcus. A second culture recovered from patient El 70 days later was identified as the gonococcus.

A review of the clinical information on the 7 patients reveals no one factor which might explain the bacteriologic findings (Table 1). None of the patients was known to have had meningococcal infection, although this information was not ascertained for three of the group. Four had a history of previ-

* Difco Laboratories, Inc., Detroit, Mich.

† A culture from this patient, taken 1 month prior to the one reported herein, was identified as a gonococcus in the laboratory of Dr. Justina Hill, of the Brady Urological Institute.

ous attacks of gonococcal infection. Four had received sulfonamide therapy for the current infection before the culture was isolated; the remaining 3 had not had any chemotherapy.

DISCUSSION

The differentiation of the meningococcus from the gonococcus is a more difficult problem than is generally recognized. Recent investigations have shown that the two species possess similar basic biochemical constituents and a close immunological interrelationship. The methods for differentiating the one from the other are carbohydrate fermentation and serologic tests, especially those based on "halo" formation. At present the meningococcus is known to differ from the gonococcus principally in that it is capable of fermenting the disaccharide maltose and that strains in Group I elaborate a specific carbohydrate.[13] As yet, a similar carbohydrate has not been demonstrated with certainty in the gonococcus.

The significance of the meningococcus in the genitourinary tract of patients with clinical symptoms of gonococcal infection is unknown. Only recently, Branham [14] pointed out that the gonococcus not infrequently invades the meninges and can be recovered from the spinal fluid. Although it has been known that these two species of Neisseria have many similar characteristics, both bacteriologic and serologic, our findings suggest still closer biologic relationship between the two organisms.

The source of the strains of meningococci recovered from the genitourinary tract raises some interesting questions. There are two possibilities, at least, to be considered. The meningococcus may have been introduced by contact with cases or carriers of the infection, or, the gonococcus may have acquired the biochemical activities of the meningococcus as a result of unusual environmental factors *in vivo*.

No single factor in the history of the 7 strains offers a possible explanation of the bacteriologic findings. At first, it might appear that freezing and storage at low temperatures had changed the biologic characteristics of a gonococcus, but the fact that one strain showed the characteristics of a meningococcus before as well as after freezing suggests that this is not a tenable explanation. Ostensibly, exposure *in vivo* to sulfonamide compounds cannot account for such a possible transition because 3 strains were recovered from untreated patients. On the other hand, until sufficient evidence has been accumulated to prove that sulfonamide compounds do not affect the characteristics of the gonococcus, this theory cannot be dismissed. The possibility of exposure of the organism to sulfonamide compounds in previous hosts must not be ignored.

The epidemiological significance of meningococci in the genitourinary tract may prove interesting. Similar findings have not been reported from laboratories in other sections of the country where large numbers of cultures from the genitourinary tract are examined for the gonococcus. The 7 strains described herein were isolated from residents of Baltimore. Of several hundred cultures of Gram-negative diplococci isolated from the genitourinary tract and identified by fermentation reactions in our own laboratories during the past decade, not one has proved to be the meningococcus, although both *Neisseria catarrhalis* and *Neisseria sicca* have not infrequently been recovered. It may be pointed out that the strains were recovered in the late winter and early spring, the season at which meningococcal meningitis is most prevalent.

Undoubtedly, as the cultural methods for the diagnosis of gonococcal infection become more universally employed in public health laboratories, additional data will be accumulated to interpret the significance of these observations.

SUMMARY

Seven strains of Neisseria having the biologic characteristics of Group I meningococci have been isolated from the genitourinary tract of 7 patients with clinical symptoms of gonococcal infection.

ACKNOWLEDGMENT—We are grateful to the staff of the Brady Urological Institute for their coöperation in this work and especially to Dr. Justina Hill.

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Health Care in Defense

"THE first requisite of an effective working force, as of any army, is that it be well nourished, sufficiently well housed and clothed, and well cared for medically. The provision of essential health services to the whole population cannot, therefore, be regarded as a luxury, as a 'social gain' to be shelved for the duration; rather, it is vital to the whole productive effort, as essential as oil to an engine."

Louis S. Reed

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PRIORITIES IN PUBLIC HEALTH

THE military services will undoubtedly draw severely on the supply of able-bodied workers now employed by health departments and it will be difficult to replace these losses with equally competent persons. Budgets, too, may be reduced. Nevertheless, the need for providing basic public health services will be greater than before the war. In these circumstances, health agencies may be faced with the task of deciding which of their activities are the more essential and which, with reasonable safety, may be curtailed or for the time being eliminated. A choice here will be difficult. The raiment of public health programs has never included patch pockets and cuffed trousers and so it will not be a question of discarding the superflous, but rather of deciding between the more important and the less important.

Unfortunately there is no formula in public health administration by which a decision may be reached as to the relative importance of all the elements which go to make up a public health program. One may roughly gauge the seriousness of a problem by the recorded mortality and morbidity, but the worth of such an index is limited by a number of factors: how nearly morbidity and mortality figures represent the true situation, as in syphilis; the potentialities for disaster inherent in a disease at present only sporadic in occurrence, as in smallpox; the age at which illness ordinarily occurs in any given disease; the length of illness; the fatality rate. Then, too, aside from the relative importance of a public health problem, one must consider the effectiveness and applicability of known control measures in relation to that problem. Knowledge as to prevention and control may be very meager, as in poliomyelitis, or even with known preventive and control measures, application may be difficult because it necessitates more restraint or more curbing of liberty than many people are willing to observe, as in measures for the control of venereal diseases.

Assuming, however, that some authoritative body could provide a formula which in the abstract would give a key to the relative importance of public health activities, conclusions so reached would not necessarily be applicable in all situations. And even if allowance is made for the varying necessities which must exist

in so vast and complex an area as the United States, it must be remembered that whatever is done in public health in any given state or locality must finally be decided on the basis of the convictions and personal opinions of the administrative officer responsible. These opinions, to say the least, would vary. But in spite of the difficulties inherent in any attempt to determine the relative importance of the different activities which go to make up a public health program and of thus establishing program priorities, there is a brighter side to the picture. There would be little difficulty, for instance, in getting agreement as to the necessity of maintaining maximum effectiveness in excreta disposal, in the provision of safe water supply, and in insuring safe milk. Further, certain responsibilities are imposed upon all health departments in connection with the control of acute communicable diseases, and these activities must, therefore, be given priority claims. It is probably fair to state, too, that many places now conducting ambitious public health programs would find the community benefited if less important activities were eliminated and, with the funds and time thus saved, there were provided better case finding and clinic facilities in chronic communicable diseases, especially the venereal diseases.

One could easily list other public health activities which most administrators would regard as essential. We hold no brief though for giving prior claims to any particular schedule of services. On the other hand, it does seem wise that those responsible consider how best they can contribute to the public health through the lean years ahead when staffs and budgets may be reduced to skeleton-like frameworks. Much undoubtedly could be accomplished by having one health officer serve where previously there were two; with better community organization and more participation by carefully directed lay groups; by a willingness to face the fact that in some areas programs are carried on intensively and extensively in this service or that because of tradition, personalities, and entrenched bureau strength, rather than because of the seriousness of the problem or the productiveness of the program. In any event, those interested in this subject, and most administrators will be interested, may find some aid in recent developments of the work of the Committee on Administrative Practice. A subcommittee of this group, responsible for the fact-finding schedules of the Health Conservation Contests, has indicated an admirable tendency to go through from the superstructure of health activities down toward their foundation. If no foundation is discovered, this Grading Committee takes the very logical attitude that the structure as a whole is unsound. Thus, if the public water supply is neither approved for safety nor available to most of the population, the entire sanitation program must be regarded as inadequate no matter how much laborious routine is attempted. Doubtless some might disagree with the conclusions in detail, but the method which this Grading Committee has adopted has much to commend it, and we suggest that those who are facing problems of priority in public health obtain the committee's aid in an effort to reach a wise decision on this matter.

PLANS FOR INSTRUCTION IN TROPICAL MEDICINE

IF against an atlas of the world one matches place names in the news of military and naval operations of the United States of America, a very high proportion of these names will be found to lie between the Tropics of Cancer and Capricorn, or not far north of the former or south of the latter. This means inevitably that

our expeditionary forces will be exposed to diseases endemic and epidemic in the hot countries and that officers of the medical and sanitary corps will be faced with the problems of prevention and control of such diseases. Because this is so, there has been a marked up-swing of interest in the general subject of tropical medicine, and many medical schools and schools of public health are quite wisely emphasizing instruction in these subjects.

The problem of maintaining health and controlling disease in the tropics is found not only in the physical environment, but also in the broader field of ecology. High temperatures and humidity, and intense solar radiation seriously handicap the newcomer; and these same conditions contribute generally to abundant propagation and survival of certain bacteria, protozoa, viruses, mycotic forms and insects which find man a desirable or necessary host. Against some of the diseases which exist, reasonably effective preventive measures have been developed. But the application of procedures for control will necessarily be limited where there must be rapid troop movements, the inauguration of temporary depots and lines of supply, and the emergency construction of roads. Troops entering these areas will go in without the naturally acquired immunity which most of the surviving natives will possess against many of the diseases. For these reasons, as well as for others, medical officers must not only be oriented as to formal and conventional methods in tropical medicine, but must in addition be so thoroughly familiar with their subject that they will be able to meet promptly the necessities of varying situations, to extemporize, and otherwise provide to the troops the maximum protection available in difficult circumstances.

It needs further to be emphasized that the prevention and control of tropical diseases is not a one man job. There is first, of course, the problem of diagnosis and treatment of those already affected by diseases with which physicians in this country are not now familiar. Second, there is the question of prophylaxis of the individual through vaccines, drugs, strict care as to food and drink, personal hygiene. Then come the larger measures of disposal of excreta, not only for troops but for adjacent populations, the location of camps, the choice and disinfection of water supplies, and measures which relate to the control of insects or protection from them. This, of course, is a generic rather than a detailed list of the problems which must be met, but it is sufficient to indicate that not only will the knowledge and skill of physicians be necessary but also the services of sanitary engineers, entomologists, parasitologists, bacteriologists, and others, including common laborers. Likewise, the teaching of these subjects will demand more than clinicians and microscopists.

In view of the situation to be met, all must commend and further the plan of instructing medical and public health personnel in the problems and control of diseases in the tropics. There is, however, one aspect it would seem wise to consider seriously. It is this: there seems some danger that, as occasionally happens in the teaching of other subjects, emphasis may be given to the exotic and dramatic diseases of the tropics rather than to those which, though constituting far greater hazards, have lost their appeal because of previous though desultory interest in them. For instance, one is likely to be intrigued with the picture of an elephantoid scrotum so large that the individual must trundle it before him in a wheelbarrow. This sort of thing, of course, is to the surgeon as is a red flag to a bull. He wants to do something about it and can. Actually, though, while some of our troops will undoubtedly get filarial infections, the results will be not nearly

so disastrous as they are likely to be from the lowly and familiar dysenteries. Again, the very names of some of the tropical diseases carry within themselves threat and mystery: Schistosomiasis, Trypanosomiasis, Calabar swelling, Dumdum fever, Verruga Peruviana, Pappataci fever, etc. But all these added together will probably be of no moment when compared with what must be faced in connection with malaria. Yellow fever may, of course, be of serious concern, and is a subject upon which officers of the medical and sanitary corps should be well informed. Fortunately our troops will go into tropical areas vaccinated against this disease. Also, troops in certain parts of the Orient may face a menace in local cholera situations, and it is possible that typhus and plague, though not confined to the tropics, may be endemic in areas of military operations. Dengue, too, may render high proportions of troops simultaneously and temporarily non-effective. But most of these diseases are limited geographically, are absent in many parts of the tropics, or are not necessarily highly endemic. Malaria and the dysenteries, on the other hand, are practically everywhere in the warm countries, and although in considering them one may not through an association of ideas experience the thrill and glamour of blue seas and waving palms, the medical officer, in studying tropical epidemiology and ecology, would do well to major in these two diseases which are almost unlimited in their capacity to produce illness and death.

What and Who Is an Epidemiologist?

Comments on an editorial published in the April, 1942, issue of the Journal:

C. F. Adams, M.D., Director of Laboratories of the State Board of Health of Missouri, Jefferson City, writes: "I should say that an epidemiologist is a physician (M.D.) who investigates the presence (diagnosis), extent, source (water, food, air, etc.), and control of an epidemic or outbreak of any disease. He would use, either in person or through others, many subsidiary sciences, such as bacteriology, protozoology, helminthology, medical entomology, mycology, chemistry, sanitary engineering, and at times statistical methods. These subsidiary sciences generally would be represented by others in a consultative relationship.

"In other words, an epidemiologist is a medical inspector who goes into a community to find the *what* and *why* and *control* of an outbreak of any disease.

"The epidemiologist would, no doubt, become interested in past epidemics, and would marshall a vast material relative to duration and source, and in this regard his statistical methods would be one of his most powerful instruments.

"As a paleontologist is a zoölogist studying prehistoric fauna, so the epidemiologist would be, in this case, a physician investigating past outbreaks of disease."

Credit Lines

A Selective Digest of Diversified Health Interests

D. B. ARMSTRONG, M.D., AND JOHN LENTZ, M.S.

WHAT THE PUBLIC WANTS TO HEAR

" Foot health is vital to victory—Wear our scientifically fitted shoes "

" Get your health from the sea—Eat fish for victory "

These slogans (if they may be called such) typify the extremes to which some advertisers go to stress the relationship of their products to the two subjects that now seem to be uppermost in the public's consciousness—victory and health. Perhaps you have seen similar examples and have also been struck by their absurdity. Although it may be difficult to control this cheap sort of health exploitation, we feel it our duty to " go on record " as having raised our voices in protest. Now, of all times, it is not only inappropriate but downright unpatriotic to couple health with questionable ballyhoo.

Perhaps, after all, the public is not much impressed by such advertising copy. Certainly few are gullible enough to believe that the war effort and the nation's health are vitally dependent upon " scientifically fitted " shoes and daily portions of broiled mackerel. Yet claims of this sort may actually prevent the full realization of the potential war effort as they contribute nothing to the psychological drive so necessary to a country at war.

And this brings us around to the question of what the public *does* want to be told today—a question that should concern health educators. W. J. Weir, in a recent issue of *Printers' Ink*, made a forceful statement along these lines. Most of us will agree with Mr. Weir that the public wants to be told many of the following things:

We want to be told—not to remember Pearl Harbor. We want to be told to take Tokyo, to bomb Berlin, to raze Rome.

We want to be told—not to help keep our world and our way of life from being lost. We want to be told to help build a *new* world and a *better* way of life.

We want to be told—not to buy Defense Stamps or Defense Bonds. We want to be told to buy *Victory* Stamps or *War* Bonds.

We want to be told—not to do our part to keep Naziism or Fascism from these shores. We want to be told to do our part to spread Americanism to *all* shores.

We want to be told to sing battle songs. Don't tell us there'll be bluebirds over the white cliffs of Dover. To hell with bluebirds. Tell us there'll be vultures and a deathly silence over Berchtesgaden.

We want to be told that we are going to win lebensraum for our democratic way of life.

According to *Printers' Ink*, these are the things the public wants to hear! Many would like to see more publicity emphasizing most of these angles—and less ballyhooing of dubious approaches to health and victory.

AN EDITORIALETTE: HEALTH EDUCATION IN PUBLIC HEALTH

While the factor of health education in public health is not *all* important, it is indeed vital to all other elements in public health and preventive medicine as practised in the modern community. Health education helps to create its associate units essential in a basic health program. It should permeate all of

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these related services and influences. On the other hand, without these concrete services, such as medical examinations in schools, clinic facilities in health centers, examination services in industry, health education tends to remain a highly intangible, theoretical, abstract and largely futile commodity. It finds its substantiation in its relationship to these practical services. It is visualized, precipitated, brought out of the realm of theory by its contact with its basic service colleagues. It, therefore, has a creatively reciprocal relationship with the other elements in public health. It enhances their value and reality, and finds its own realization through them. *Health education is the one element in our health program that contributes most to making the whole public health effort substantially greater than the sum of its parts!*

RECENT HEALTH PUBLICATIONS

At this time of the year, reports—annual and otherwise—blossom forth in clusters. One of the best of the current crop comes from the W. K. Kellogg Foundation of Battle Creek, Mich. Under the title, "The First Eleven Years," the varied activities undertaken by this great agency since its inception are discussed and pictured in a highly effective manner. The work of the Kellogg Foundation is well known to workers in public health, its innovations in many fields having placed it in the forefront among agencies of its kind. But one will gain a new and fuller appreciation of the Foundation upon reading this excellently prepared summary. It is reassuring in times like these to find so much emphasis on the part of the Foundation upon democratic principles and their relation to successful community enterprises. It is also reassuring to note that the Foundation does not plan to rest on its laurels but is already looking to the future, planning greater achievements. The Foundation staff is to be congratulated on its report which is handsomely bound, well written, well organized, and illustrated with a wealth of good photographs.

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The 1941 report of the Georgia Warm Springs Foundation sets forth the highlights of another fruitful year of work in the medical care and treatment of infantile paralysis victims. This compact report includes a foreword by Franklin D. Roosevelt, a series of striking photographs which "catch" the cheerful atmosphere of the institution, and pertinent information regarding the history, current activities, and financial affairs of the Foundation. From the standpoint of make-up, the 1941 report is noted for its clean simplicity of type and layout. Copies may be secured from the Foundation, Warm Springs, Ga.

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"Something new has been added" to the health library of the John Hancock Mutual Life Insurance Company, the title of which is "Guarding Your Family's Health." This recent publication, authored by Wilson G. Smillie, M.D., is devoted to general health information. Readers will find here an interesting and illuminating discussion of modern public health facilities, and what they mean in terms of the individual's welfare. The publication gives due recognition to the work of nonofficial agencies and group medical prepayment associations. The format of the booklet is most attractive and the cover design and illustrations are done with distinction. *Guarding Your Family's Health* is available without cost from the Life Conservation Service of the John Hancock Life Insurance Company, Boston, Mass.

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Farm and home safety is becoming a subject of increasing interest to health departments, as evidenced by recent meetings at which programs to combat this part of the safety problem were formulated. Thus health workers will

find a new publication of the International Harvester Company particularly timely and valuable. Under the title of "Stop Carelessness! Prevent Accidents!" a most comprehensive survey of every type of accident hazard on the farm and in the home is presented. This publication contains a valuable collection of photographs illustrating conditions that often lead to injury or death. There is excellent teaching material in this booklet. Several pages of first aid information are also included in the contents. Copies are available without cost from the International Harvester Company, 180 North Michigan Avenue, Chicago, Ill.

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Two significant articles from recent issues of *Hygeia* have been issued in reprint form by the American Medical Association. "Our Selectees Are Healthier" is the title of one. It deserves wide distribution, as a great deal of misleading information has been circulated about the state of the national health. This authentic analysis of the draft rejections and health conditions in the armed forces will go a long way toward reassuring the public that the nation's general health was never better. The second *Hygeia* article, available in reprint form, is entitled "Health at the Crossroads." This article stresses the resources of the modern health department and their rôle in the community of today. Both reprints deserve wide use. Write to the A.M.A., 535 North Dearborn Street, Chicago, for quantity prices or send *10 cents* for a single copy.

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To health workers particularly interested in the development of school health programs, a bulletin outlining the school health policy of Ohio can be highly recommended. This publication outlines in a concise but complete manner the objectives and the fundamental principles underlying Ohio's school health education program. In reviewing this bulletin, one is impressed with the well rounded nature of the program and the emphasis placed upon coöperative relationships. "No local school health program is able to function properly as an isolated endeavor, for it must be a coöperative effort of school, home, community, and state in the interest of the whole child and the future citizen," the bulletin states. The Advisory Committee on Health Education of the Ohio Public Health Association is to be commended for its work in defining and coördinating the state's school health education program. Copies of the bulletin may be secured from the Association, 1575 Neil Avenue, Columbus, Ohio. Single copies are priced at *20 cents*.

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A simple vest-pocket leaflet on syphilis and gonorrhea has been issued by the State Department of Health of New Jersey. This publication is unique in that it minces no words about prostitution, alcohol, and prophylactic procedures. Heretofore, venereal disease literature marked by such frankness has been distributed chiefly to men in our armed forces. The New Jersey health authorities, however, maintain that the war effort "now makes it very important that the civilian population be given instruction as to the prevention of these diseases." The New Jersey leaflet amply "fills the bill." Copies may be had by writing the State Department of Health at Trenton.

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The Division of Maternal and Child Health of the Montana State Board of Health has prepared a series of nine prenatal letters which are sent directly to patients under the care of physicians. The content of these letters covers practically every topic about which the prospective mother is concerned. The text of each is direct and informative. We suspect that these letters not only serve an educational purpose, but also save "wear and tear" on the physician

who might otherwise be required more frequently to travel long distances in the wide open spaces to visit patients more in need of simple information than actual medical care. Copies of the letters are available from the Montana State Board of Health at Helena. They are well worth the attention of all workers in maternal health programs.

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Group voluntary (prepayment for medical costs) health associations are springing up in many sections of the country today and it appears that a new type of health education material may be expected from these associations. In fact, one of the leading agencies of this type in New York State —the Group Health Cooperative—has recently inaugurated a popular health bulletin for its subscribers. The content of the first two numbers emphasizes several timely health topics—including individual health in national defense, nutrition, keeping fit in the city, etc. There are also news items concerning affairs of the Cooperative and developments in the public health field of general interest. The bulletins are sound in content and well conceived editorially. Congratulations to Winslow Carlton, Executive Director of the Group Health Cooperative, 1790 Broadway, New York, N. Y.

INFORMATION ON MOVIES

Motion pictures are perhaps our most popular medium of health education. It is doubtful, however, if we have learned to use films as skillfully as we might. Studies throwing light on this important tool of instruction are consequently of considerable value.

A survey recently concluded by the Health Education Service of the National Tuberculosis Association, while it dealt only with films on the tuberculosis problem, nevertheless brings out many pertinent facts that all producers of health films would do well to study. According to replies received in answer to a questionnaire, the "composite" tuberculosis secretary prefers (1) a motion picture in *drama* form, (2) appealing to the *general public*, (3) for the purpose of *teaching people* what to do for themselves, (4) emphasizing the *x-ray*, and (5) with a running time of *15 minutes*.

The N.T.A.'s survey also elicited criticism as to what's wrong with health movies. Poor craftsmanship topped the list of critical barbs. In reply to this, the N.T.A. states: "We make no excuse for poor craftsmanship, but remember we do not aspire to match the finest Hollywood products. We want sincerity, simplicity, and realness, even at the sacrifice of photogenic quality. Our films must be entertaining, but essentially they are designed to teach, persuade, to win support of tuberculosis control work." Criticisms were also voiced regarding the quality of sound recording. In reply to this it was pointed out that complaints on this score are often unjustified, as the operator, the projector, or the acoustic properties of the room are most frequently responsible for unsatisfactory sound.

For what purpose are tuberculosis films needed? The following varied answers were given to this question: (1) to teach people what to do for themselves, (2) to inform people about modern facilities, (3) to stimulate leaders to support tuberculosis control measures, (4) to relate tuberculosis to some social problem, such as housing and nutrition, (5) to build good will.

The survey disclosed that films should be developed that appeal to the general public. "Movies should have a universal appeal for people in all walks of life rather than for those of a special or chosen group."

As to types of treatment, the dramatic form of movie is preferred even though it is difficult to convey an educational message by means of dialogue.

Instructional, cartoon, documentary, and didactic narration films were among the other types of films suggested by those who answered the questionnaire.

In regard to length, the 15 minute film was deemed most serviceable, while some of the individuals polled preferred movies running to 20 minutes.

Surveys of this nature will go a long way toward helping health educators understand better the rôle of films in the educational field, their possibilities, and limitations.

Since the users of tuberculosis films voted for more pictures emphasizing the x-ray, it might be well for those charged with the production of future movies, and other educational materials, to guard against overemphasis. Due recognition should be given to the other participating factors in the tuberculosis control program, including the private medical practitioner.

AT LAST—EDUCATION PAYS

Welcome news comes from the American Medical Association concerning *Hygeia, The Health Magazine*. In the Association's annual report to its officers, the statement is made that "for the first time in several years *Hygeia* credits were greater than debits, in the sum of $15,738.06." It may be safely said that such a favorable balance has probably not often prevailed in the history of a publication devoted to education and service rather than to profit making. Moreover, the A.M.A. has abundantly demonstrated the utility and practical feasibility of a major publication dealing popularly with health education and disease prevention. Many years ago when *Hygeia* was launched there were, among those in the medical and public health professions, probably more skeptics than optimists regarding its financial future. It must be especially gratifying to the staff of *Hygeia* to find the publication prospering at a time when so many established journals are merely "getting by," because of diminishing advertising revenue.

While *Hygeia* now has 114,000 regular subscribers, it merits a larger audience. The magazine has constantly improved in editorial content, as evidenced by the number of articles which *The Reader's Digest* draws from its pages. Moreover, *Hygeia* is widely quoted in the press and over the radio. The magazine's art staff also deserves credit for the general excellence of the publication's illustrations and format.

We wish continued years of prosperity to this valuable magazine and hope that its health messages will reach an ever widening circle of readers.

PUBLICITY TIPS FOR THE DURATION

Representatives of several health organizations in New York City recently participated in a round-table discussion on "Health Education in Wartime." Some of the observations growing out of this meeting are of interest to health workers generally.

The participants considered ways and means of putting the health educator's message before the public despite the limitation of newspaper space growing out of the increased volume of war news. To insure acceptance of health news, it was recommended that only newsworthy material be presented to editors, that stories be submitted in the form of press releases so that rewriting is not required, and that all material be checked thoroughly to make sure that it contains no information of aid to the enemy.

The relationship of health to the war effort was another topic receiving attention. It was the feeling of the participants that material stressing the tie-up between health and the war must be presented gradually to newspapers and not overdone. Editors are receptive to news on tuberculosis, nutrition, syphilis, the prevention of blindness, nursing, and the like, because these subjects

have a clear-cut bearing upon the war effort. Because of the war, women's page editors are more interested in health news than ever before. In this connection, it is well to remember that health news may be used again and again if each time it is presented from a fresh and new angle. After health education information is presented to the public through newspapers, it should be followed up through the use of other media—such as the radio, the health lecture, or through nurses during home visits.

Concerning the use of radio, it was pointed out that pressure upon broadcasting stations for time is increasing because of the many war activities that must be aired. Thus the standards of health education broadcasts must be raised if they are to be presented via radio. One of the networks that has accepted health material for presentation has suggested that a way of improving the content of health broadcasts lies in the development of a definite radio character or personality to deliver weekly talks. In this way a stress of continuity may be established and a definite audience gained. This scheme has been successfully carried out by the New York State Department of Health through its radio character " Dr. Jones " and by the Baltimore City Health Department through its " Dr. Ashley."

Another plan to improve broadcasting is being developed by the New York Academy of Medicine, in coöperation with the major chains. Here an attempt is being made to bring together the professional man, who knows his subject but is not an expert in radio presentation, and the radio authority with extensive experience in the effective use of the air for entertainment or advertising purposes. Prior to the radio address, these two experts from different fields will try to shape the form and content of the health message so as to increase its utility through this medium. This experiment will be studied with very great interest.

CONCERNING A POSTER

Booklets, posters, and other publicity materials issued for use in safety education are becoming increasingly effective. Excellent examples of publicity material are available today from a number of safety organizations, particularly the National Safety Council, 20 North Wacker Drive, Chicago, Ill. Outstanding among the Council's current publicity media is a series of war posters, the sixth of which is now ready for use. It is such a splendid example of poster art that it deserves special mention in these columns. Three statements—Keep 'em Fighting, Production Wins Wars, Stop Accidents—are grouped around a handsome painting of a sailor loading ammunition. The expert way in which the text and the illustration have been handled results in a poster that has great impact. Wherever this poster is displayed it will certainly stop passers-by in their tracks. Posters like this are an excellent contribution to the nation's war effort.

Health educators—take note of the work that our colleagues in the safety field are doing. There is much that we can learn from them.

FOR YOUR RADIO PROGRAM

The government needs 50,000 well qualified students to enter schools of nursing. It is an urgent need and every health agency in the country should aid in the publicity drive that is now in progress to enroll young women in the profession. Excellent publicity materials are available, including two 15 minute radio programs which have been recorded by the Nursing Council on National Defense. The recordings are entitled " Night Nurse " and " Public Health Nurse," and to date they have been broadcast by almost 500 radio stations. Has your local station pre-

sented them? If not, these dramatizations should be offered to the program director.

The scripts of both dramatizations are full of items of human interest and at the same time they impress upon the listener the fact that the nursing profession offers an unequaled opportunity for service to humanity in times of peace as well as in times of war. The dramatizations are so well presented that any program director should welcome them for a prominent "spot" on his evening schedule. Each script ends with an appeal to young women—Mrs. Franklin D. Roosevelt speaking on the "Night Nurse" recording and Surgeon General Parran on the "Public Health Nurse" program.

Inquiries concerning the double-faced recording of these scripts should be addressed to David Resnick, Public Information Consultant, Nursing Council on National Defense, 262 Madison Avenue, New York, N. Y.

Other interesting and timely radio material that can be used to great advantage now may be obtained from the National Society for the Prevention of Blindness, 1790 Broadway, New York, N. Y. The Society offers two transcriptions, free of charge, to any health organizations that may wish to use them. "Eyes for America's Future" is the title of one of the transcriptions. It stresses the fact that good eyes are not only essential for men in military service, but they are also necessary for skilled craftsmanship in the shop. The second transcription is called "Man Was Born to See." It deals with some of the more common causes of blindness and how loss of sight may be prevented.

MAGAZINE ARTICLES

Current popular magazine articles on health or of medical import:

"Keep Up with Medicine" (a new monthly feature). *Good Housekeeping*, May, 1942.

"Doctors in Uniform." Maxine Davis. *Cosmopolitan*, May, 1942.

"Why Teachers Are Neurotic." Frances V. Rummell. *Good Housekeeping*, May, 1942.

"The Army's Menu Maker." Maxine Davis. *Coronet Magazine*, May, 1942.

"A Working Cure for Athlete's Foot." Paul de Kruif. *The Reader's Digest*, May, 1942.

"Nerves in the War." George W. Gray. *Harper's Magazine*, May, 1942.

"Skyscraper of Healing." William McDermott. *Coronet Magazine*, May, 1942.

"What We Know about Vitamins." Waldemar Kaempffert. *New York Times Magazine*, May 3, 1942.

"Fun in a Dentist's Chair." William F. McDermott. *Coronet Magazine*, April, 1942.

"Death in a Drinking Fountain." Michael Evans. *Coronet Magazine*, April, 1942.

(The above is not presented as a complete list and the articles cited are not necessarily recommended.)

JOTTINGS

The appointment of Dr. Benjamin G. Horning as Chairman of the Ninth Institute on Health Education has occasioned much favorable comment. Dr. Horning's varied experience in public health gives reassurance that the forthcoming Institute program will be in capable hands. Dr. Ira V. Hiscock, who is largely responsible for the growth and success of previous Institutes, will be missed by one and all. . . . We understand that serious consideration is being given by the New York Academy of Medicine to having its library index and catalogue the more important and significant health education reports and publications—a service that should be of value in the future. . . . Suggested slogan for public health workers: "Help to save lives—Help to win the war." . . .

Another slogan from Elda Robb of Simmons College Home Economics Department: "People who are 'all in' cannot go 'all out' for defense." . . . Joke of the month: "I do hope you keep your cows in a pasture," said Mrs. Newlywed as she paid the milkman. "You see, the health department says pasteurized milk is much the best." . . . Are you familiar with the film program of the General Electric Company? Many of the pictures produced by this organization deal with scientific subjects —x-rays, the biology, of microscopic life, research, and the like. A catalogue listing all films available from this source may be obtained by writing the Visual Instruction Section, General Electric Company, Schenectady, N. Y. . . . Quotation from Ralph Waldo Emerson: "Education is not pouring knowledge into minds; it is not erudition. A person is not truly educated unless knowledge influences his *doing* as well as his *thinking*. In so far as learning alters and directs *behavior* it is education." . . . A city-wide immunization campaign against whooping cough was undertaken recently by the Boston Health Department. . . . An interesting and valuable series of lectures and discussions has been taking place monthly since January, 1942, with one lecture concluding the series in May, dealing with health education from the angles of nutrition, mental hygiene, sociology, advertising and public health. This series represents the first joint effort in this direction by the New York City Welfare Council and the Academy of Medicine, the lectures being open to members of the staffs of the many agencies participating in the Welfare Council. The April meeting, presided over as usual by Dr. D. B. Armstrong, was enlivened by an excellent presentation by John Benson, President of the American Association of Advertising Agencies, on the contribution of commercial advertising to health education. . . . We hear interesting reports of an experiment that is now in progress to evaluate the teaching performance of public health nurses. A microphone, disguised as an inkwell, is placed on a desk in the room where nurses interview patients. The conversation between the nurse and the patient is picked up by the microphone and recorded. Later the record of the interview is studied to determine the effectiveness of the nurse as a teacher, the patient's reaction, and the like. . . . The technical Committee on Evaluation of Motion Pictures of the New York City Nutrition Program has reviewed 37 films on food and nutrition and rated them according to accuracy of subject matter, organization of material, quality of film presentation, and educational value. The committee's report will be published during the summer by the American Film Center. The preliminary report indicates that this will be a most valuable guide for organizations using films in nutrition programs.

BOOKS AND REPORTS

Communicable Disease Control—*(A Volume for the Health Officer and Public Health Nurse)—By Gaylord W. Anderson and Margaret G. Arnstein. New York: Macmillan,* 1941. 434 pp. Price, $4.25.

This book is divided into two parts, in the first of which the principles underlying communicable disease control are discussed. The difficult task of summarizing the historical background and generally accepted theories of epidemiology and disease control is for the most part handled satisfactorily and with avoidance of sweeping generalizations and discursive writing. In fact, the authors have apparently exercised so much care in selecting and qualifying words and phrases that at times their style is slightly laborious and certain passages are somewhat difficult to read. Chapters in the first part of the book deal with the organization of health services, the legal aspects of the subject, the rôle of the public health nurse, and nursing care in the home. Methods of investigation and analysis of data are covered in another chapter.

The second part of the book contains brief descriptions of individual diseases and the steps to be taken during their investigation and management. Each disease is treated more or less uniformly, with specific recommendations as to the functions and responsibilities of the health officer and the public health nurse in prevention and control. Presentations of material on clinical aspects, the epidemiology of individual diseases, and the administrative features of their control are nicely balanced as to space and content. But the book is much more than an ordinary reference manual or a dry compilation of facts regarding the diseases covered. It reflects the wide experience of the authors and contains valuable hints and practical suggestions that are obviously the result of first hand observations and study in the field.

Statements and opinions expressed throughout the book are in general accurate and in conformity with the most recent discoveries and beliefs. Some authorities would take exception to using the term "infected" to describe contaminated water and milk supplies, since infection implies multiplication of the causative agent in the medium. The authors state that references at the end of each chapter have been selected on a basis of easy access and are not all-inclusive. In view of some of the references to recent contributions which have been included there are rather surprising omissions, such as the tuberculosis studies of Stewart and his associates, and the original paper on the transmission of yellow fever to monkeys by Stokes, Bauer, and Hudson.

As a useful summary of American practice, and because it brings together in a unique manner the functions of the health officer and the public health nurse, the book is to be recommended to all workers in communicable disease control. GEORGE H. RAMSEY

Modern Bread from the Viewpoint of Nutrition—*By Henry C. Sherman and Constance S. Pearson. New York: Macmillan,* 1942. 118 pp. Price, $1.75.

This short summary on bread will be most helpful to all health workers since many of the questions which they are continually asked are answered in this book. The authors point out that while staple white bread has been highly developed and standardized technologically, little attention has been given to its nutritive value. The breads of a century ago, those of a decade ago, and those now being introduced all have

energy values of about 1,200 calories per pound, but they differ greatly in protein value and in mineral and vitamin content. Special emphasis is given to the loss of mineral elements and B vitamins as a result of modern milling methods and the various procedures now being used for correcting these deficiencies. The requirements proposed by the Food and Drug Administration for enriched breads are given.

The authors are to be complimented on the last chapter in which emphasis is given to the fact that for some years to come the bread problem will present a tentative or transition aspect from more than one point of view.

C. A. ELVEHJEM

Industrial Surgery—*By Willis W. Lasher, M.D. (rev. 1st ed.). New York: Hoeber,* 1942. 472 pp. Price, $6.50.

This is an enlarged first edition of the book originally published in 1938. It contains 472 pages, 194 illustrations, a bibliography of 237 references, and a 22 page appendix replete with illustrations of splints and appliances. Its 26 chapters cover the diagnosis, treatment, and industrial considerations of injuries of virtually every part of the body. Included also are the organization and equipment of industrial medical departments and two new chapters, one on strains and sprains, and the other on chemotherapy.

The foundation of this book is formed by the extensive experience of the author. He freely expresses his personal opinions and conclusions, the book abounding in brief, illustrative case reports. Though definitely a monograph, Dr. Lasher repeatedly refers to opinions and methods of others, reference always being made to the extensive bibliography appended. Medico-legal phases of injuries are discussed in ample detail, the exact scheduled awards of specific instances often being given. The compensability of various ailments and injuries is given due prominence. Though no special section is devoted to them, the reader can readily locate, by use of the index, discussions on subjects such as osteomyelitis, burns, skin grafting, malingering, and amputations.

To include such a vast amount of material in one book is indeed noteworthy and, not realizing that all subjects are never covered with equal detail by any one author, some readers may wish for more discussion of certain subjects, for example: the treatment of compound fractures, the symptomatology of the protruded inter-vertebral disc, chronic sub-dural hematoma, the initial cleansing of burns, the use of plasma in shock, and the injection treatment of fibrositic areas.

The entire book is intensely practical. Not only is the whole field of industrial surgery covered, but detailed information is given (including illustrations) concerning treatment of all manner of injuries.

With industry geared toward a tremendous war effort, industrial surgery is a most vital subject. Therefore, not only to the industrial physician, but to the general practitioner as well, will this book hold great appeal.

FREDERICK W. SLOBE

Developmental Diagnosis—Normal and Abnormal Child Development—*By Arnold Gesell and Catherine S. Amatruda. New York: Hoeber,* 1941. 447 pp. Price, $6.50.

The authors of this unique volume have brought together an enormous mass of material gathered from the Yale Clinic of Child Development and have organized it in such a practical manner as to be highly useful to clinicians and others concerned with normal and abnormal development of children. It carries forward the pioneer work of Arnold Gesell and his associates into a practical field.

The book is organized around three main sections, namely, Principles and Methods, Defects and Deviations of Development, and The Protection of Early Childhood Development, any one of which may be taken as a complete unit.

The authors consider Chapter III in Part I as " the most basic in the book, because it integrates the developmental tests, the behavior characteristics, and the growth trends of the behavior patterns for the period from four weeks to three years. This chapter is organized for convenient reference and is illustrated with over 100 photo-tracings of normative behavior patterns."

This volume cannot fail to have a profound influence upon methodology in the study of young children and upon the supervision of their health and development based upon exact and exhaustive observations.

Developmental Diagnosis is not a book of passing interest, but a volume of reference for some time to come.

RICHARD A. BOLT

The Microbe's Challenge — *By Frederick Eberson, Ph.D., M.D. Lancaster, Pa.: Jacques Cattell Press,* 1941. 352 pp. Price, $3.50.

Dr. Frederick Eberson's book *The Microbe's Challenge* is one of the best and ablest versions of the story of bacteriology. It is completely unlike any of the previously published versions. Dr. Eberson is master of a happy style. At no time vulgar, his recitation reads smoothly and sustains interest from beginning to end. This work is a topnotch illustration of the thesis that competent popularization does not necessarily involve the sacrifice of factual truth or of good taste.

The book is a scholarly review of the history of the development of the signs of bacteriology. It is also a good " teaching work "; the reader of this book will not only learn to know but also *to understand* the intricacies of bacteriology. The work brings the subject right down to the present day and includes such current matters as the viruses, bacteriophage, and experimental epidemiology.

The work has been composed, as the author states in his preface, from the point of view of *Microbes Versus Man,* and several times there is repeated in the text, Pasteur's grand hope " that it is within the power of man to cause all parasitic disease to disappear from the world." Time past, there was the hope that the science of bacteriology might offer the instrumentalities for this achievement. We now know that this hope was vain. The author so acknowledges it but, in this reviewer's opinion, not with sufficient emphasis. The belief that the primary cause of parasitic diseases is the parasite is open to serious challenge.

The weaker chapter in this otherwise excellent book is the 9th, entitled " Epidemics to Order." The author appears to have misread the studies of Greenwood, Webster, etc. These studies bear upon the dynamics of epidemics, that is, the propagation of epidemic diseases in herds of experimental animals living under artificial conditions. These studies *do not* illuminate the etiology of natural diseases of epidemic dimensions.

Apart from these minor criticisms *The Microbe's Challenge* is a work to be highly commended to health educators, public health workers, medical students, and to physicians. I know of no better summary of the subject matter.

IAGO GALDSTON

Vital Statistics of the United States, 1939—*U. S. Department of Commerce, Bureau of the Census. U. S. Govt. Printing Office, Washington D. C.,* 1941. *Part I—Place of Occurrence,* 531 pp. $1.50. *Part II—Place of Residence,* 283 pp. $1.25.

Here we have the maximum of

economy and efficiency of presentation of our nation's births and deaths. The arrangement is logical and convenient, permits easy finding and use of the tabulated facts and rates based upon them. The introductory pages are adequately explanatory and, dealing as they do with the two major topics of natality and mortality by place of occurrence and place of residence separately, the text is more direct and comprehensive than in some earlier volumes. The natality and mortality data for the United States tabulated by place of occurrence and by place of residence, with supplemental tables for Hawaii, Puerto Rico, and the Virgin Islands, is a priceless addition to a shelf of equally precious predecessors.

These two volumes are more convenient to handle, save more lost motion and waste of eyesight than any of their predecessors, while presenting practically all the essential data other than such as may properly be classed as hand-picked and of a research nature. The supervision of Dr. Halbert L. Dunn, the Chief Statistician for Vital Statistics, is of itself a guarantee of the scholarship of the brief, succinct text and the authenticity of the tabular matter. HAVEN EMERSON

A History of Medical Psychology—*By Gregory Zilboorg, M.D. In collaboration with George W. Henry, M.D. New York: Norton,* 1941. 606 pp. Price, $5.00.

This book presents the story of man's interest in his own behavior and that of his fellows over a period from before the 4th century B.C. to the present time. Its chapters are entitled Primitive and Oriental Medical Psychologies; The Greeks and Romans; The Great Decline; The Restless Surrender to Demonology; The Blows of the Witches' Hammer; The First Psychiatric Revolution; The Age of Reconstruction; The Discovery of Neuroses; The Era of Systems; The Second Psychiatric Revolution; Epilogue; Organic Mental Diseases; and Mental Hospitals. These pages present a tremendous amount of honest effort to portray the long, tedious and gloomy journey of metaphysics, psychology, psychiatry, and medicine toward an understanding of mental health and a humanistic tolerance of all its relationships to society and its problems of living. Aside from the objective of presenting a faithful background of historical facts the text develops in its progress that "although officially a branch of medicine, psychiatry was accepted into the brotherhood of medical efforts only on sufferance, only on the condition that it accept in advance the tenets of medicine and consider that disease means physical disease, and that mental disease be included in the organic realm of things." It is a truth that should be thought provoking.

This book should be in the library of every medical school and hospital as a valuable source of reference and collateral reading.

ESTHER LORING RICHARDS

Professional Dentistry in American Society—*By Alfred J. Asgis, Ph.D., D.D.S. New York: Clinical Press,* 1941. 260 pp. Price, $4.50.

The author of this interesting book has given more than the usual consideration to the relation of the profession of dentistry to society at large. He brings into the forefront some of the responsibilities of one to the other, and suggests that dentistry as a profession must give a constantly increasing amount of thought to fulfilling its obligations to society, while, on the other hand, society must not overlook its responsibility to the profession.

In addition to urging society and dentistry to realize the necessity for shared responsibility and concerted effort, Dr. Asgis relates events which lead to the recognition of dentistry as a pro-

fession. The pattern and trend of past and present dental education are traced and its future discussed in a stimulating and thought provoking manner.

This book serves a useful purpose, and should be of particular aid to the non-dental health worker who may have an interest in or responsibility for the integration of dental activities in a general public health program.

BION R. EAST

Determining Work Loads for Professional Staff in a Public Welfare Agency—*By Herbert A. Simon, William R. Divine, W. Myles Cooper, and Milton Chernin. Berkley: Bureau of Public Administration, University of California,* 1941. 94 pp. Price, $1.00.

This is a nice bit of job analysis which so impressed the California State Relief Administration that part of the recommendations were put into practice. The major functions of the social workers in the local branches of the state organization are to determine eligibility for relief and to reinvestigate the eligibility of active cases. Their function was not to administer relief. The problem was to determine from the standpoint of efficiency and cost how large a case load should be given workers at different stages of the job. The more workers employed, the greater the operating expense. And yet with too few workers accuracy in approving eligibles was reduced, people stayed on relief longer than necessary, and the expenditure for relief clients was greater. Where is the desirable middle ground?

There are three distinct steps in the job. The first contact of the client is with the "qualifier" who after a prolonged personal interview approves or disapproves the application. Those approved go to the "field intake" group who check up the application by a home visit and approve or disapprove. And finally the "carrier" group periodically visits cases receiving relief to make sure that the eligibility requirements have not changed.

The experiment was carried on in Los Angeles County with varying combinations of case loads at each of the three steps in the job. The outcome in terms of specific units indicates that a good initial interview is the most important. The case load of the "qualifier" should be kept low. The load on the "field intake" group could be stepped up. The load on the "carrier" should not be overdone.

These differences talk in dollars. In terms of total expense per 100 original applications there is a range from $11,000 to $15,000, depending on what combinations of load are placed on the three groups.

Administrative research of this kind has application in the field of public health. Public health nursing, sanitary and food inspection are suitable fields. At what point do checking and supervision yield returns disproportionate to the cost? This is a matter worth exploration.

GEORGE T. PALMER

Everyday Nursing for the Everyday Home—*By Elinor E. Norlin, R.N., and Bessie Donaldson, R.N. New York: Macmillan,* 1942. 306 pp. Price, $2.50.

Everyday Nursing for the Everyday Home is a very attractive title for a very timely and practical presentation of knowledge and skills of especial value to all families and home builders today. The authors are registered nurses with long and varied experience in private duty, hospitals, and public health nursing. For some years they have been teaching home nursing and health in the New York City high schools. At the request of the New York City Board of Education, they prepared a syllabus on home nursing and their book is based on this syllabus.

The book is divided into two parts. The first, approximately half of the total, deals with Nursing to Keep Well,

the second, with Nursing When Illness Comes. The material is presented in a very readable style and is supplemented by very simple and clear drawings and illustrations. The volume includes an excellent list of suggested readings of interest to any home maker and a splendid glossary is included.

It would seem to the reviewer that this publication will be of definite interest to home makers and to all students and teachers of home nursing.

MARION G. HOWELL

Eye Hazards in Industry — *By Louis Resnick. Published for the National Society for the Prevention of Blindness. New York: Columbia University Press,* 1941. 239 pp. Price, $3.50.

The appearance of this book is timely in view of the increase in injuries due to industrial accidents during the last two years reported by such authorities as the Bureau of Labor Statistics and the National Safety Council. The book is divided into two parts: Part I poses the problem which is essentially the protection of the eyes of industrial workers from injury; Part II proposes ways and means to solve the problem.

In Part I are presented the facts concerning the nature and incidence of industrial eye injuries and their cost to the employer, employee, and the community.

In Part II the author presents most effectively a practical manual for the control of eye hazards in industry. Mechanical guards, goggles, and protective devices of different types are illustrated and explained. The rôle of process revision, education of employer and employee, and illumination of working stations in the prevention of visual injury is clearly set forth in succeeding chapters. The text closes with a brief outline of the importance and need of administrative supervision in the conservation of eyesight in industry.

The reviewer is impressed with the aims of the book and the fact that it is unique in the field. It is intended primarily for safety engineers, safety inspectors and others directly engaged in safety work concerned with conservation of vision. The author makes his fundamental point with the introductory statement that 300,000 eye injuries occur in American industries yearly, costing employers more than $100,000,000 and injured workmen and their communities annually an equal sum. All but 2 per cent of this enormous economic loss with attendant physical disability and suffering is said to be wholly unnecessary.

As a whole the book is excellent and should be put into the hands of everyone in industry whose duties are in any way concerned with health and safety. The admirable chapters on preventive measures merit reproduction in cheaper form for distribution to small industrial plants where such material is most needed and where it may not otherwise penetrate. BENJAMIN F. JONES

Gynecology and Female Endocrinology—*By Emil Novak, M.D., D.Sc. (Hon. Dublin), F.A.C.S. Boston: Little, Brown,* 1941. 605 pp. Price, $10.00.

The author approaches his text with the viewpoint that gynecology is no longer to be considered as a branch of surgery inasmuch as the biologic aspects are so prominent. He thus omits operation details. The diagnosis and treatment are stressed from both anatomic-physiologic approaches. In his consideration of this field he attempts to limit his discussion to "straight" gynecology and female endocrinology. The latter may be a little confusing as the line of demarcation between male and female endocrinology is by no means clear.

The arrangement of material follows the stereotyped form common to most

texts. The chapter on anatomy presents nothing new. The discussion of history taking and physical examination is good and, of course, stresses the gynecologic viewpoint. The importance of a general study of the patient might have received more emphasis though it is brought out with reference to endocrinopathies. The anatomic grouping of diseases is endorsed rather than the recognition of disease processes which are now located here and again there.

The author manifests a wide familiarity with the literature, especially in the fields of pathology and endocrinology, and is perhaps inclined to be discursive. The illustrations are excellent and the author and publisher may well contemplate this work as a production worthy of them. In such a kaleidoscopic field as endocrinology is at present, it is not possible to have a book published which is up to the minute in all details. One who reads and studies this work could not help attain basic and clinical knowledge of great value.

FRED L. ADAIR

Mental Hygiene for Community Nursing—*By Eric Kent Clarke, M.D. Minneapolis: University of Minnesota Press,* 1942. 262 pp. Price, $3.50.

In twelve chapters Dr. Clarke beautifully develops the thesis that each one's reaction to illness (and many times the illness itself) is but a natural part of his total life pattern, and that the community nurse is in the strategic position to give real help. The book is full of short case histories which commend themselves particularly as being "run of the mill" patients whom the nurse sees from day to day. The reviewer cannot remember another psychiatric product that is so nicely tuned to the group for whom it is written. Some of the terms are pretty complicated for the amateur—but could not have been more adequately described without unjust lengthening of the text.

Everyone who reads the book must develop an interest in the *why* of the crankiness, the unreasonableness, the faith or hope of her patients. And that is at least half of the trick.

The book covers habit problems and many of the usual ones of the school child; it goes over the more common family conflicts; there is an excellent chapter on convalescents; the adolescent and the handicapped child each has a good chapter. The psychoneurotic is as hard to deal with in the book as in life—but Dr. Clarke sets up a clear picture of our limitations here. The chapter on what the community nurse can do for the psychotic and his family, is peculiarly good.

All in all, an excellent tilling of a new field by a man who knows his business.

JAMES S. PLANT

Food Values of Portions Commonly Used—*By Anna de Planter Bowes and Charles F. Church. (4th ed.) Philadelphia (311 So. Juniper Street): Anna de Planter Bowes,* 1942. 35 pp. Price, $1.00.

This is the fourth edition of a well known manual which has been widely used by people who wish to have an easy reference book. The calculations have been brought up to date and include a table by the National Research Council, Committee on Foods and Nutrition. The tables are attractively put together and as usual make it quite easy to evaluate the actual intake in the usual dietary. It would be found useful by students in medicine, dentistry, public health, nursing and nutrition.

LEONA BAUMGARTNER

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Manifestations of Malnutrition—As evidence that malnutrition among Americans is conspicuous by its absence, Clendening has reported that in his 10 years' experience at the Kansas City General only 3 cases of pellagra were seen. Well, here is a study made in comparable Ohio hospitals indicating that from 1 to 2 per cent of all medical admissions are pellagrins, and that the true incidence of pellagra, like other deficiency states, is underestimated.

BEAN, W. B., *et al.* The Incidence of Pellagra in Ohio Hospitals. J.A.M.A. 118 14:1176 (Apr. 4), 1942.

Schaeffer Method vs. Mechanical Resuscitation—In these days when thousands are being taught the rudiments of first aid, any article on resuscitation is of wide interest. This one is a report of laboratory studies which indicate that rhythmic inflation and suction is definitely superior to manual artificial respiration, or rhythmic inflation.

BIRNBAUM, G. L., and THOMPSON, S. A. Resuscitation in Advanced Asphyxia. J.A.M.A. 118, 16:1364 (Apr. 18), 1942.

Full Report on Sister Kenny's Treatment—Observers who have seen poliomyelitis patients treated by the Kenny method are convinced that they are better off in (a) comfort, (b) freedom from deformity, (c) rapidity and extent of recovery, than are patients treated by conventional methods. This detailed report should be studied by all who may have any relationship whatever to the problem of polio control.

DALY, M. M. I., *et al.* The Early Treatment of Poliomyelitis. J.A.M.A. 118, 17:1428 (Apr. 25), 1942.

Xerosis Conjunctivae, et al.—Preclinical nutritional deficiency states as represented in tissue depletion, biochemical lesions, and altered physiology are more common and more important than the frank manifestations of nutritional failure. It is the early manifestations that public health and private physicians must understand in order that they may play their proper parts in the national campaign for better nutrition. This is a paper of immediate importance to all.

JOLLIFFE, N. Nutritional Failures: Their Causes and Prevention. Milbank Quart. 20, 2:103 (Apr.), 1942.

Tuberculosis Takes on New Seriousness—A negative tuberculin reaction is preferable in a non-tuberculized environment, a positive one in a tuberculized community. Primary and reinfection types of tuberculosis cannot be told apart for each may have certain features of the other. Hence, all newly discovered x-ray lesions must be treated as potential phthisis. These provocative answers to a series of pertinent questions on the epidemiology of tuberculosis, and their interpretations should be read by all.

MAYER, E., and RAPPAPORT, I. Present Key Problems in Tuberculosis. J.A.M.A. 118, 14:1179 (Apr. 4), 1942.

What Four Cents Will Buy—Four cents per capita was spent for venereal disease control in 1940. That is a sizable sum and for it we were

and still are getting a lot of syphilis prevention. How it was carried out in the several states is the gist of the excellent study.

MOUNTIN, J. W., and FLOOK, E. Distribution of Health Services in the Structure of State Government. Pub. Health Rep. 57, 16:553 (Apr. 17), 1942.

Some Populations Are Phoenix-like — America's population is fast approaching stationariness, city growth is slowing down, poorer classes multiply at greater rates than the well-to-do, the old age segment is greatly increasing. These four obvious phenomena affect almost every aspect of personal, social, and national life. The discussion paints a darksome picture, with just a ray of hope the value of which you may want to assess.

PANUNZIO, C. Population Trends in the United States. Sci. Month. 54, 4:353 (Apr.), 1942.

All the Resources of Two Americas—Nazis know the correlation between good nutrition and qualities of courage, stamina, and morale. They are applying it to the hilt, in reverse, to establish and maintain the repulsive Nazi dichotomy—slave caste and master race. America's task in defeating this design and healing the wounds of starvation when the war is won is portrayed in the most eloquent state paper these tired eyes have had the privilege to see.

PARRAN, T. Health Nutrition, and National Defense. Canad. Pub. Health J. 33, 3:99 (Mar.), 1942.

Confidential Death Certificates—Because so many people may see the death certificate between the time it is made out (in one Canadian Province) and the time it reaches the statistical offices of the Ministry of Health, a confidential death certificate is now in use. It is provided with a sealable flap to cover the cause of death. There is evidence that a more accurate reporting of the cause of death has ensued since the change was made. About one in five were intentionally falsified or incomplete under the old system.

PARROT, P. The Use of the Confidential Death Certificate in the Province of Quebec. Canad. Pub. Health J. 33, 3:114 (Mar.), 1942.

Building Malaria Out—Experience in lining drainage ditches with monolithic concrete, pre-formed slabs and bricks is recounted.

ROBERTSON, J. L. Observations on Experimental Malaria Control Drainage Ditch Linings. Pub. Health Rep. 57, 13:451 (Mar. 27), 1942.

Draftees in Two World Wars—Syphilis, tuberculosis, mental disqualifications now are weeded out by modern diagnostic methods that were not available for use in the First World War draft. Then it was necessary to secure men quickly, train them hurriedly, transport them without loss of time. Now we are building an efficient army that can handle complicated equipment and we are wisely choosing the best men to do it.

ROWNTREE, L. G., *et al.* Health of Selective Service Registrants. J.A.M.A. 118, 14: 1223 (Apr. 4), 1942.

Respiratory Cross Infections Can Be Prevented—Individual air conditioning of cubicles did not prevent respiratory infections in an infants' ward, but air conditioning with germicidal light barriers or glass barriers did prevent cross infections. Maintenance of light barriers is costly, the use of glass partitions a nuisance, and the installation expensive. So you take your choice.

SAUER, L. W., *et al.* Control of Cross Infections of the Respiratory Tract. J.A.M.A. 118, 5:1270 (Apr. 11), 1942.

TB in the Dark—Dried tubercle bacilli, depending upon the mass of the dose, survived in ordinary room light up to 5 days. In the dark some survived 3½ to 5 months. In the refrigerator they lived even longer. They lived longer in winter than in other seasons.

SMITH, C. R. Survival of Tubercle Bacilli. Am. Rev. Tuberc. 45, 3:334 (Mar.), 1942.

Fluorides in the Water, Minerals in the Diet—In a Texas county the incidence of caries is half the lowest reported elsewhere and much below the average. Either the consumption of water containing fluorine or its application during cleansing, or both, must have been a contributory factor. Also there is a high phosphorus content to vegetable and animal products produced in the region. The incidence of caries was directly proportionate to *Lactobacillus acidophilus* in the saliva.

TAYLOR, E. Preliminary Studies on Caries Immunity in the Deaf Smith County (Texas) Area. J. Am. Dental Assoc. 29, 3:438 (Mar.), 1942.

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NURSING HISTORY. By Minnie Goodnow. 7th ed. Philadelphia: Saunders, 1942. 495 pp. Price, $3.00.

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OUTLINES OF FOOD TECHNOLOGY. By H. W. von Loesecke. New York: Reinhold, 1942. 505 pp. Price, $7.00.

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CIVIL DEFENSE MEASURES FOR THE PROTECTION OF CHILDREN. Report of Observations in Great Britain, February, 1941. By Martha M. Eliot. Washington: Government Printing Office, 1942. 186 pp. Price, $.30.

THE HOME GUIDE TO MODERN NUTRITION. By N. D. Phillips. New York: Longmans, Green, 1942. 96 pp. Price, $.50.

FAMILY NUTRITION. Philadelphia Child Health Society, 1942. 106 pp. Apply to the Society.

SUMMARY OF STATE LEGISLATION REQUIRING PREMARITAL AND PRENATAL EXAMINATIONS FOR VENEREAL DISEASES. By Aneta E. Bowden and George Gould. New York: American Social Hygiene Association, 1941. 24 pp. Price, $.25.

PROSTITUTION AND THE WAR. By Philip S. Broughton. New York: Public Affairs Pamphlet No. 65, 1942. 32 pp. Price, $.10.

DIETARY USES OF THE BANANA IN HEALTH AND DISEASE. A REVIEW OF SCIENTIFIC LITERATURE. By L. Jean Bogert. Revised and Enlarged Edition. New York: United Fruit Company. 67 pp.

MICROMAX SMOKE DENSITY RECORDERS. Leeds and Northrup Co., 4907 Stenton Ave., Philadelphia, Pa., 1942. 16 pp. Free upon request to the Company.

MANUAL FOR MANAGERS OF RURAL AND SMALL SCHOOL LUNCHROOMS. Prepared and Published by The Ohio Dietetic Association, Cleveland, Ohio, 1942. 226 pp.

ASSOCIATION NEWS

SEVENTY-FIRST ANNUAL MEETING

ST. LOUIS, MO., OCTOBER 27–30, 1942

Headquarters

MUNICIPAL AUDITORIUM

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Robert Dessent, M.D., 527 N. Main St., Ann Arbor, Mich., Student, Univ. of Michigan, School of Public Health

Henry W. Kassel, M.D., City Hall, Kansas City, Kan., Asst. Director of Health

James C. Malcolm, M.D., 1501 W. Main St., Visalia, Calif., Asst. Surgeon (R), U. S. Public Health Service

Jason Miller, M.D., Hinds County Health Dept., Jackson, Miss., Asst. Surgeon (R), U. S. Public Health Service

Willard D. Nalchajian, M.D., 5 Nichols, Chelsea, Mass., Student, Dept. of Biology and Public Health, Massachusetts Institute of Technology

C. Barton Nelson, M.D., M.P.H., 2808–42nd Ave., South, Minneapolis, Minn., Epidemiologist, State Dept. of Health

Joseph A. Randazzo, M.D., Municipal Bldg., 55 Front St., Bath, Me., Passed Asst. Surgeon (R), U. S. Public Health Service

Carl J. Weissmann, M.D., P. O. Box 731, Waynesville, Mo., Asst. Surgeon (R), U. S. Public Health Service

Henry S. Wolanczyk, M.D., Lebanon, Mo., Health Officer, Laclede County Health Dept.

Rhea L. Wyatt, M.D., Clarke-Wayne Health Dept., Shubuta, Miss., Director

Laboratory Section

Ruth S. Bitter, 109 Harvard Terrace, San Antonio, Tex., Laboratory Technician, City Health Dept.

Leo Cravitz, B.S., 114 Irving St., Everett, Mass., Student, Dept. of Biology and Public Health, Massachusetts Institute of Technology

Marian Glater, B.S., 53 Sharon St., Hartford, Conn., Microbiologist, State Board of Health Laboratory

Jeanette Herman, B.S., 10 Longwood Terrace, Boston, Mass., Graduate Student in Public Health, Massachusetts Institute of Technology

Justina H. Hill, D.Sc., Calvert Court, Baltimore, Md., Assoc. in Urology, Johns Hopkins Medical School

Harold A. Johnson, 5229 Columbus Ave., Minneapolis, Minn., Student, Univ. of Minnesota

Eugene V. LaClair, B.A., Keizer Hospital, North Bend, Ore., Director of Laboratory

Lotte M. Lisman, City Health Dept., Danville, Va., Technician in charge of Laboratory

Perry J. Manheims, M.D., 27 West 96th St., New York, N. Y., Asst. Director, Laboratory of Lenox Hill Hospital

Francis M. Middleton, B.S., U. S. Public Health Service, E. 3rd and Kilgour, Cincinnati, Ohio, Asst. Chemist

Esther R. Mizl, 990 E. 17th St., Brooklyn, N. Y., Laboratory Asst., New York City Dept. of Health

Francis I. Norris, B.S., E. 3rd and Kilgour Sts., U. S. Public Health Service, Cincinnati, Ohio, Asst. Chemist

Warren B. Rawlings, V.M.D., Pitman-Moore Co., Zionsville, Ind., Asst. Director, Biological Laboratories

Edward Records, V.M.D., Univ. of Nevada, Reno, Nev., Director, State Veterinary Control Service

Mortimer Warren, M.D., Maine General Hospital, Portland, Me., Pathologist

Vital Statistics Section

Oswald K. Sagen, Ph.D., Capitol Bldg., State Dept. of Public Health, Springfield, Ill., Chief Statistician

Melville A. Taff, Jr., B.S., 111 Berman Court, Chapel Hill, N. C., Student, Univ. of North Carolina

Engineering Section

Major Charles L. Adams, M.S., 85 Ann Ave., Battle Creek, Mich., Asst. Post Medical Inspector, U. S. Army

John A. Brown, B.S., 30 East Columbia, Colorado Springs, Colo., Sanitarian, City-County Health Unit

James J. Corbalis, Jr., B.C.E., Fairfax County Health Dept., Fairfax, Va., Sanitation Officer

Herman L. Fellton, B.S., 66 Luckie St., U. S. Public Health Service, Atlanta, Ga., Passed Asst. Sanitary Engineer

Fred E. Johnston, 220 Cloverhurst Ave., Athens, Ga., Public Health Engineer, Athens and Clarke County Dept. of Health

Silvio D. Mastroianni, A.B., 728 W. 5th St., Reno, Nev., Sanitary Inspector, State Board of Health

Frank B. Maxson, B.S.C.E., State Health Dept., Cheyenne, Wyo., Asst. Sanitary Engineer

Albert W. Petty, B.S., 317–34th St., Virginia Beach, Va., Sanitation Officer, State Dept. of Health and Town Engineer

Arthur C. Ragsdale, M.S., Eckles Hall, Columbia, Mo., Professor of Dairy Husbandry, Univ. of Missouri

Joseph A. Salvato, Jr., M.C.E., 35 Market St., State Dept. of Health, Poughkeepsie, N. Y., Asst. District Engineer

Milo R. Simmonds, B.S., P. O. Box 462, Antlers, Okla., Asst. Sanitary Engineer, State Health Dept.

George E. Weant, Jr., B.C.E., 130 Maupin Ave., Salisbury, N. C., Junior Public Health Engineer, U. S. Public Health Service

Maternal and Child Health Section

Dorothy A. Hansen, R.N., Box 337, Sitka, Alaska, Public Health Nurse, Territorial Dept. of Health

H. Close Hesseltine, M.D., 5848 Drexel Ave., Chicago, Ill., Asst. Professor of Obstetrics and Gynecology, Univ. of Chicago

Dr. Julie Palmieri, Morse St., Arroyo, Puerto Rico, Physician, Bureau of Maternal and Infant Hygiene, Puerto Rico Health Dept.

Benjamin Sachs, M.D., M.S.P.H., 30–24 Steinway St., Astoria, N. Y., Student, DeLamar Institute of Public Health

Industrial Hygiene Section

Orlen J. Johnson, M.D., M.P.H., 535 N. Dearborn, Chicago, Ill., Field Worker, Council on Industrial Health, American Medical Assn.

Richard W. Schayer, B.S., State Board of Health, Jefferson City, Mo., Asst. Chemist, Div. of Industrial Hygiene, U. S. Public Health Service

Food and Nutrition Section

Edith M. Cushman, M.P.H., 434 Edgewood Ave., New Haven, Conn., State-wide School Lunch Supervisor, WPA

Bryce Prindle, Ph.D., Iowa State College, Dept. of Bacteriology, Ames, Iowa, Teacher of Bacteriology

Frederick J. Stare, M.D., Barnes Hospital, 600 S. Kingshighway, St. Louis, Mo., Resident Physician

Public Health Education Section

Cornelius M. Bowen, 36 Bogert Place, Westwood, N. J., Health Officer

Elizabeth E. Harvey, M.S.P.H., 935 Bonifant St., Silver Spring, Md., Health Educator

Clarence L. E. Monroe, Ph.D., 1613 W. Butler St., Philadelphia, Pa., Teacher of Hygiene, Morgan State College

Edwin S. Powell, State Board of Health, Columbia, S. C., Field Agent, Venereal Disease Control

Lillian B. Rumbaugh, B.A., 984 University Terrace, Reno, Nev., Secretary, State Hygienic Laboratory and Div. of Venereal Disease Control, State Health Dept.

Clarence G. Salsbury, M.D., Sage Memorial Hospital, Ganado, Ariz., Medical Director and Chief Surgeon

Public Health Nursing Section

Thelma C. Ballard, Carroll County Health Dept., Huntingdon, Tenn., Junior Public Health Nurse

Edna Burke, 1003 Carona St., Denver, Colo., Asst. Supt., Denver Visiting Nurse Assn.

Ina M. Collins, R.N., Jasper County Health Dept., Webb City, Mo., Senior Staff Nurse

Lucille E. Corcoran, R.N., B.S., 845 Johnson Ave., Monterey, Calif., Public Health Nurse, U. S. Public Health Service

Beulah R. Daniel, R.N., F-5 Terrace Apts., Macon, Ga., Crawford County Public Health Nurse

Audrey R. Gallion, R.N., B.S.N., 1215 N.E. 4th St., Fort Lauderdale, Fla., Supervising Nurse, Florida Migratory Labor Health Assn.

Eileen M. Goodall, R.N., Box 942, 921 S. 4th St., Laramie, Wyo., County Public Health Nurse

Marjorie Kennedy, B.S., Lowndes County Health Dept., Columbus, Miss., Public Health Nurse, U. S. Public Health Service

Edna Kupferschmidt, R.N., City Hall, Div. of School Nursing, Dubuque, Iowa, City Nurse

Margaret Mallett, R.N., 6725 Harding Ave., Miami Beach, Fla., Public Health Nurse, Florida Migratory Labor Health Assn.

Mary E. McAuliffe, R.N., 305 Greenwood, Topeka, Kan., State Supervisory Nurse, State Board of Health

Edythe E. Payne, Reserve, N. M., Public Health Nurse, U. S. Children's Bureau

Mary A. Preston, B.S., Box 1500, Anchorage, Alaska, Junior Public Health Nurse, Anchorage Health Dept.

Elesa Simonson, R.N., B.N., Salmon, Ida., Lemhi County Nurse

Esther B. Smith, R.N., P. O. Box 732, Belle Glade, Fla., Visiting Nurse, Florida Migratory Labor Health Assn.

Anne M. Whalley, Box 1164, Kodiak, Alaska, Public Health Nurse, Territorial Dept. of Health

Epidemiology Section

Mabel S. Ingalls, Ph.D., Albany Medical College, New Scotland Ave., Albany, N. Y., Asst. Professor of Bacteriology

Nicholas Michelson, M.D., Jefferson County Health Dept., Birmingham, Ala., Surgeon (R), U. S. Public Health Service

Jose Rodriguez-Pastor, M.D., 8 Pershing St., Santurce, Puerto Rico, Chief, Bureau of Tuberculosis, Puerto Rico Health Dept.

Richard Scandalis, M.D., 116 Ferguson, Fallon, Nev., Field Physician, U. S. Indian Service

Unaffiliated

Karl W. Anderson, M.D., 430 Oak Grove St., Minneapolis, Minn., Chief Medical Officer, Northwestern National Life Insurance Co.

DECEASED MEMBERS

T. R. Crowder, M.D., Chicago, Ill., Elected Member 1905, Elected Fellow, 1922, Industrial Hygiene Section

M. Luise Diez, M.D., Boston, Mass., Elected Member 1926, Elected Fellow 1931, Maternal and Child Health Section

Clinton A. Kane, M.D., Elkton, Md., Elected Member 1926, Health Officers Section

Howard Morrow, M.D., San Francisco, Calif., Elected Member 1934, Health Officers Section

Henry G. Steinmetz, M.D., Lansing, Mich., Elected Member 1937, Health Officers Section

William H. Walsh, M.D., Chicago, Ill., Elected Member 1930, Industrial Hygiene Section

S. W. Wynne, M.D., New York, N. Y., Elected Member 1915, Elected Fellow 1924, Vital Statistics Section

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CLOSING DATE FOR SUBMITTING FELLOWSHIP APPLICATIONS

MEMBERS who may be interested in applying for Fellowship in the A.P.H.A. are hereby advised that Fellowship applications should be received not later than August 1, to insure consideration at the 71st Annual Meeting.

WANTED: The following issues of the *American Journal of Public Health*—July and August, 1941; and January, 1942. The Association will be glad to pay postage.

RATES QUOTED BY ST. LOUIS HOTELS

Seventy-First Annual Meeting, October 27 to 30, 1942

AMERICAN PUBLIC HEALTH ASSOCIATION

ALL RATES QUOTED ARE FOR ROOMS WITH BATH
ON EUROPEAN PLAN

Hotel	*Single*	*Double*	*Suites*
New Hotel Jefferson	$3.00–5.00–6.00–7.00	$6.00–7.00–7.50–8.00	$12.00–20.00
Statler	3.00–3.50–3.75–4.00	5.25–6.00–6.25–6.50	17.00–18.00
	4.25–4.75–5.00	6.75–7.00–9.00	
American	2.00–2.50	3.50–4.00	
Claridge	2.50–3.00	3.50–7.00	
Coronado	2.25 (shower)	4.50–5.00	6.00
	2.75		
DeSoto	2.65–up	4.00–5.00	8.00
Lennox	3.50–4.00–4.50–5.00	4.50–5.00–6.00–7.00	10.50–14.50
	6.00	8.00	
Mark Twain	2.50–4.00	3.50–5.00–5.50	
Maryland	2.25–2.50–2.75	3.25–3.50–3.75–4.00	
		4.50	
(without bath)	1.75–2.00	2.75–3.00	
Mayfair	3.00–3.50–4.00–5.00	4.00–4.50–5.50–6.00	
		7.00	
Melbourne	2.65–3.20–3.70–4.20	4.20–4.80–5.30–5.80	
		6.20	
Park Plaza	4.50	6.00–8.00	12.00–18.00
Warwick	2.00–2.50–3.00	3.00–3.50–4.00–4.50	7.00–10.00
		5.00	

.....**(Cut off on this line and mail to the hotel of your choice)**.....

HOTEL RESERVATION BLANK FOR THE ST. LOUIS MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION, OCTOBER 27–30, 1942

To .....
(Name of Hotel)

Please reserve for me ..... rooms for ..... persons for the A.P.H.A. Meeting.

Single room ..... Double room .....

Maximum rate per day for room $..... Minimum rate per day for room $.....

I expect to arrive ..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

Street Address.....

City..... State.....

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York, N. Y.

ARIZONA MERIT SYSTEM COUNCIL

The Merit System Council for the Arizona State Department of Social Security and Welfare and State Department of Health will probably shortly announce merit examinations for positions in those departments as follows:

State Director, Local Health Administration.....	$350–400	
Director Maternal and Child Hygiene.....	350–400	
Director, Local Health Unit.....	350–400	and $300–350
Health Officer-in-Training.....	300–350	
Director of Sanitary Engineering.....	300–350	
Sanitary Engineer	200–250	
Director, Public Health Laboratory.....	300–350	
Senior and Junior Bacteriologist-Serologist.....	165–215	and $115–165 respectively
X-ray Technician	165–190	
Director Public Health Nursing.....	215–265	
Nursing Consultant, special fields.....	175–200	
Supervising Public Health Nurse, local unit....	175–200	
Senior and Junior Public Health Nurse, local unit	150–175	and $125–150 respectively
Public Health Nurse-in-Training.....	100–125	
Director Health Education.....	215–265	
Nutrition Consultant	215–265	
Vital Statistician	175–225	
Medical Social Worker.....	165–190	
Child Welfare Consultant.....	200–250	

Competition is open on a nation-wide basis. Professional registration in Arizona required before appointment for certain classes. Closing date for receipt of applications will probably be about June 15.

Application blanks, information regarding qualification requirements, conditions governing filing of applications, and detailed descriptions of the various classes of positions may be secured from the Merit System Council, Room 208, Home Builders Building, Phoenix, Ariz.

GEORGIA STATE MERIT SYSTEM ADMINISTRATION

The Supervisor of Examinations of the Georgia State Welfare Department announces competitive examinations for filling positions in the Public Assistance, Crippled Children, and Child Welfare Divisions. In the Crippled Children Division the salary ranges are minimum $1,800, maximum $2,280 for the position of Medical Social Worker, Orthopedic Field Nurse, and Physical Therapy Technician; for District Orthopedic Field Nurse a minimum of $1,920, maximum of $2,400; Physical Therapy Consultant a minimum of $2,400, maximum of $2,880; Orthopedic Nursing Consultant and Medical Social Consultant begin at a minimum of $2,700 and range to a maximum of $3,180; Medical Director of the Crippled Children Services begin at a minimum of $4,200 with a maximum of $5,400.

All of these positions are open to competitive assembled examinations except the Medical Director of the Crippled Children Services which is an unassembled examination. The examinations are based upon a rating of training and experience, a written test, and an oral interview. Each eligible who is appointed from the adequate register will be required to serve a probational period of 6 months as is the usual custom in Civil Service and Merit System agencies.

Georgia State residence is not required of an applicant in order to participate in the above examinations.

U. S. CIVIL SERVICE COMMISSION

The Commission has announced unassembled examinations for Junior Public Health Nurse at $1,800 a year and Junior Graduate Nurses at $1,620 a year, under which the training and age requirements of announcements No. 88 and 103 of 1941 have been amended. Persons interested should communicate with the U. S. Civil Service Commission in Washington or obtain the amended announcements at any first or second class post office.

The Commission has announced that applications will be received for positions as Senior Medical Officer ($4,600), Medical Officer ($3,800), and Associate Medical Officer ($3,200) for appointments in the Public Health Service, with the Food & Drug Administration, Veteran's Administration and the Indian Service. Forms for application may be obtained from the U. S. Civil Service Commission, Washington, D. C.

PHYSICIANS NEEDED IN CANAL ZONE

The U. S. Civil Service Commission announces an examination to secure physicians for clinical service in the Panama Canal Zone. Graduation from a class A medical school subsequent to May 1, 1920, is required, and the applicant must be under 50, 25 to 35 years of age preferred. Entrance salary $4,000. Persons interested should communicate with the U. S. Civil Service Commission, Washington.

POSITIONS AVAILABLE

Physician with either public health training or experience in local health department administration to serve as health director in a county health department in mid-western state. Salary $4,000 and $500 travel (flat rate). Well established department with offices in attractive little city of 10,000. Write **Box T,** Employment Service, A.P.H.A.

Wanted: Trained Public Health Nurse, starting salary $1,500 per year and traveling expense, increase to $1,620 within 6 months. Saginaw County Health Dept., Saginaw, Mich.

Western state department of health will consider applications from physicians to fill four existing vacancies among county health officers, one vacancy in venereal disease control and positions as laboratory technicians. Write **Box S,** Employment Service, A.P.H.A.

County Public Health Nurses for New Mexico. Must have four months' postgraduate instruction under one of the recognized public health nursing courses and one year's experience. Must drive and have a car. Address inquiry to State Health Department, Santa Fe, N. M.

Position available — Deputy Commissioner of Health in mid-western city of 100,000. In writing give age, religion, training, experience and references. Write **Box A,** Employment Service, A.P.H.A.

PUBLIC HEALTH ENGINEER

Responsible professional public health engineering involving field investigations and office studies in the application of sanitary measures. The more difficult engineering and sanitation field surveys include supervision over public water supplies, sewerage systems and sewage treatment plants and review of plans for same, and promotion and supervision of sanitation programs. Minimum qualifications: Training and experience equivalent to 3 years' civil engineering experience, including 2 years in public health or sanitary engineering; *or* completion of an academic year of graduate study and a year's experience in sanitary or public health engineering; *and* graduation from a college of recognized standing with a major course in civil or sanitary engineering. The salary range is $205 to $250 per month depending upon experience. Apply **Box E,** Employment Service, A.P.H.A.

OTHER VACANCIES

Southwestern state health department seeks 2 physicians for assignment to district health units, personally to conduct several small venereal disease clinics on a rotating schedule. Experience preferred but not required. Salary $3,000, plus actual travel allowance not to exceed $1,200. Write **Box V,** Employment Service. A.P.H.A.

The New Mexico State Department of Public Health will consider applications for the position of Assistant Director of the Maternal and Child Health Division. Address inquiries to the State Department of Public Health, Santa Fe, N. M.

Wanted: Trained Public Health Nurse, starting salary $1,500 per year and traveling expenses. Increase may be expected within 6 months. Shiawassee County Health Department, Corunna, Mich.

Wanted: Nurse for county health work. Salary $1,800 per year with travel allowance (additional) of $500 per year. Address District Health Department 2, West Branch, Mich.

Instructor in Bacteriology, Medical School, large midwestern university, M.D. (or Ph.D. or D.Sc. in Bacteriology); Male. Salary $1,800 to $2,500 according to age and experience. Write **Box D**, Employment Service, A.P.H.A.

POSITIONS WANTED

ADMINISTRATIVE

Teaching or administrative position desired by physician, aged 48. Experienced teacher in preventive medicine and public health, now employed at prominent medical school; 20 years' experience in municipal health administration and epidemiology. **A–491**

Physician, B.S., M.D., and M.S.P.H., University of Michigan, aged 35, experienced city-county health administration and as director university student health service. Will consider permanent responsible position offering good income. **A–492**

Physician, aged 28; M.D. Rush; M.P.H. Harvard; seeks administrative position under first class supervision. **A-496**

WOMEN PHYSICIANS TRAINED IN PUBLIC HEALTH

Woman aged 34, M.D., University of Basle, Switzerland, M.S.P.H. DeLamar Institute, Columbia University. U. S. citizen. Excellent references. Especially interested in industrial hygiene. **A-493**

Woman aged 41, M.D. Columbia University, M.S.P.H. DeLamar Institute, experienced in epidemiology and research, seeks position offering administrative experience. **A-494**

Woman physician, aged 48, M.D., University of Vienna. Excellent European pediatric experience. Seeks position in pediatrics, administration or statistical research. **A-495**

HEALTH EDUCATION

Teacher and research worker, man, Ph.D., age 52. Extensive record as college professor of biology and hygiene and investigator, for the past two years engaged in research. **H–499**

Health Educator, Negro, man with background of High School administration and M.S.P.H. from University of Michigan, seeks position in Health Education. Public agency or educational field. Excellent references. **H–497**

Health Educator, M.A. in Education, 10 years' background in community organization for public health education, also teaching of personal and community health at high school and college levels. Public health nurse, able to teach mental and social hygiene as well as general health education. East preferred. **H–498**

Health Educator. Man with M.S. in preventive medicine and public health. Negro. Seeks position in Health Education or field work with official or nonofficial agency. **H–500**

Woman with master's degree in health education, 12 years' successful experience in public school and college teaching, administration and research. Will consider position in normal school, public schools, or in official or nonofficial health agencies. Prefers South or East. Available at once. **H–501**

LABORATORY

Milk Sanitarian and Technologist, age 37, Ph.D., Bacteriology, Wisconsin, 10 years' experience in milk and food sanitation from industrial and official angle, seeks administrative position with opportunity for research or investigational work preferred. **L–381**

Chemist, Sc.D., Biochemistry, Johns Hopkins University. Age 31. Public health laboratory experience, teaching experience. Desires position with promise of advancement, preferably in commercial organization. **L–461**

Bacteriologist, young man 28, with B.S. in industrial science, experienced in newspaper work, salesmanship and now employed in state department of health laboratory, seeks position as bacteriologist or doing promotional work of public health nature. **L–465**

Bacteriologist, Ph.D. Teaching and laboratory experience in public health laboratory methods. Desires position with University, city or state health laboratory. **L–466**

MISCELLANEOUS

Well trained opthalmologist desires position in public health work. **M–450**

Advertisement

Situations Wanted

BACTERIOLOGIST—A.B., Ph.D., state university; 6 years, university laboratory of animal pathology; 4 years, parasitologist, state department public health. PH6–1, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

NURSE—A.B. degree eastern college; graduate of school of nursing of university hospital; year's postgraduate training in public health nursing; is certified; nearly 15 years' executive experience in public health nursing; past several years, executive secretary, city health council; very superior woman of broad and varied experience; has made distinct contribution to field of public health nursing. PH6–3, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH PHYSICIAN—Degrees from leading schools; several years, field worker, well known foundation; 6 years, successful administrative experience; 8 years, health officer, large city in the South; will go anywhere. PH6–2, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

Advertisement

Opportunities Available

WANTED—INDUSTRIAL HYGIENIST — Man with medical degree preferred but not required; new plant; staff consists of eight physicians and a complement of forty technicians, nurses, etc.; Mid-South. PH6–4, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

WANTED—(a) City physician; full-time appointment in midwestern town of 25,000; woman physician eligible; $4,000. (b) Women physicians; public health appointment, pediatric background desirable; considerable traveling; Midwest. (c) Student health physician; young women's college; should be well qualified internal medicine and diagnoses; Midwest; immediately. (d) Health Commissioner, town of 105,000; Midwest. (e) Pediatrician; state public health staff, Midsouth. (f) Director; department of health and physical education; midwestern metropolis; excellent connections. (g) Obstetrician and pediatrician for consultant appointments; state department of health; public health experience desirable but not required; women eligible. PH6–5, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

PUBLIC HEALTH NURSES—(a) Instructor and supervisor of public health and outpatient nursing service; department averages 12,000 patients monthly; duties teaching and administrative; degree required; large university hospital; West Coast. (b) School nurse for public schools in small city located in Chicago area; appointee must have car; minimum salary, $150. (c) Student health nurse; girls' school located in Southern city; 9 months' appointment; $1,300, maintenance. PH6–6, Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

NEWS FROM THE FIELD

THE TEACHING OF PUBLIC HEALTH AND PREVENTIVE MEDICINE TO MEDICAL STUDENTS

HARRY S. MUSTARD, M.D., Chairman of a Committee on the Teaching of Public Health and Preventive Medicine of the Association of American Medical Colleges, recently presented a report for the information of the Committee on Professional Education of the American Public Health Association. The report is published in the March issue of the *Journal of the Association of American Medical Colleges.*

This committee was appointed originally at the suggestion of the A.P.H.A. Committee on Professional Education as a liaison between its Subcommittee on the Education of Medical Undergraduates, of which W. G. Smillie, M.D., is Chairman, and the Association of American Medical Colleges. The report summarizes findings and conclusions based on a questionnaire and opinions of the committee members, all of which will be discussed at the October meeting of the Association of American Medical Colleges.

Pointing to the wide diversity of opinion as to what should be included in a course of preventive medicine, the committee points out that this is relatively a new undertaking which faces an already overcrowded and not entirely elastic curriculum.

Believing that confusion in the terms "preventive medicine" and "public health" should be overcome, it is recommended that preventive medicine be regarded as that body of knowledge and those practices believed to contribute to the maintenance of health and the prevention of disease in either the individual or the aggregate. Correspondingly, public health is to be regarded as that body of knowledge and those practices believed to contribute to health in the aggregate, either through preventive or corrective measures or both.

The committee records a striking increase in the number of full-time departments since 1935–1936 when FitzGerald classified 24 medical schools, 18 in the United States and 6 in Canada, as having such departments. There are now 32 full-time departments, 27 in the United States, 5 in Canada.

In 26 medical schools the committee finds that there are combined departments and that 13 schools have separate but not full-time departments.

The committee deprecates the tendency among instructors in preventive medicine and public health to visualize students as future health officers rather than as private practitioners of medicine interested and informed but not specializing in this subject.

The report continues:

> That, regardless of extremes of radical and conservative opinion as to how the future of medicine may best be shaped, it be recognized that the demands of an enlarging public medical service, under one arrangement or another, will draw a much greater proportion of physicians than heretofore into government employment, on full-time, part-time, or fee basis, thus making them increasingly responsible for participating in organized preventive and corrective measures in the interest of the public health.
>
> That it be recognized that qualifications for productive teaching in public health or for instruction in the mass aspects of preventive medicine are not likely to be acquired through training and experience in some other field of medicine, or to arise naturally as part of the ageing process.
>
> That although it is entirely possible, in view of individual competence and personality, to utilize the part-time services of a health officer to direct a teaching department of public health, this should not be

regarded as a desirable procedure in ordinary circumstances.

That there continue in force the previously accepted standard of this Association, which sets aside for the teaching schedule of the department of preventive medicine and public health, 4 per cent of total curriculum hours available; that because in teaching preventive medicine and public health only minor use may be made of low salaried assistants and instructors, the budget for such a department should range from 5 to 8 per cent of the total instruction budget of the medical school.

Other members of the committee beside Dr. Mustard are John E. Gordon, M.D., Hugh R. Leavell, M.D., and Charles E. Smith, M.D.

NUTRITION FOUNDATION NAMES ADVISORY COMMITTEES

THE Nutrition Foundation, New York, N. Y., which has been organized by fifteen food manufacturers to study nutrition for the improvement of public health, has announced the membership of the scientific advisory committee. Included with this group are: F. G. Boudreau, M.D., New York; C. A. Elvehjem, Ph.D., Madison, Wis.; Icie M. Hoobler, Ph.D., Detroit, Mich.; P. E. Howe, M.D., U. S. Army, Washington, D. C.; E. V. McCollum, Ph.D., Baltimore, Md.; Lydia J. Roberts, Ph.D., Chicago; W. H. Sebrell, M.D., Washington, D. C.; Henry C. Sherman, Ph.D., New York, N. Y.; F. F. Tisdall, M.D., Toronto, Ont.; R. R. Williams, Ph.D., New York, N. Y.

Among the members of the food industries advisory committee are: Frederick C. Blanck, Ph.D., Pittsburgh, Pa., and James A. Tobey, Dr.P.H., New York, N. Y.

MICHIGAN COMMITTEE ON COMMUNICABLE DISEASE CONTROL

A COMMITTEE has been appointed, by Dr. Henry Allen Moyer, of Lansing, Michigan State Health Commissioner, to study the needs for the control of communicable disease which have arisen as the result of the sudden influx of defense workers in certain areas of the state, particularly where no organized health department exists. Members of the committee are:

Frank Van Schoick, M.D., of Jackson—Representing the state medical society

Eldred V. Thiehoff, M.D., of Lansing—Representing the State Department of Health

Edgar E. Martmer, M.D., of Detroit—Representing the Michigan branch of the American Academy of Pediatrics

Lena Schermann, R.N., of Mason—Representing the Michigan State Nurses Association

G. Robert Koopman, of Lansing—Representing the Michigan Department of Public Instruction.

COUNCIL FOR EXPECTANT FATHERS

THE New Haven, Conn., Father's Council, sponsored by the local health department, marked its 5th anniversary on March 28 with the opening of the 11th series of meetings for expectant fathers. More than 400 men have attended these lectures during the past 5 years. On May 4 there was a joint meeting for fathers and mothers as part of the observance of National Child Health Week. Dr. Arnold Gesell, Professor of Child Hygiene and Director of the Clinic of Child Development at Yale University School of Medicine, New Haven, was the speaker.

FEWER AGENCIES REQUIRED

SPEAKING recently in Washington, Paul V. McNutt, Federal Security Administrator, said:

I believe it is sound public administration to work through the fewest agencies possible. If, however, there is an urgent task to do and no old line agency is willing or prepared to do it, the only alternative is to set up a new agency. Behind the recent multiplication of governmental agencies is a long history of official and neglected opportunities. I believe there are many lessons in this history which existing health agencies might well consider and in the light of which they might reconstruct their basic philosophy.

PAN AMERICAN CHILD CONGRESS DELEGATES FROM UNITED STATES

ON May 1, President Roosevelt designated eleven delegates representing the United States for the Eighth Pan American Child Congress, May 2 to 9 in Washington.

Headed by Katharine Lenroot, Chief of the Children's Bureau, as chairman, the United States delegation includes Dr. Frank G. Boudreau and the Right Rev. Mgr. Bryant J. McEntegart of New York; Jane M. Hoey, Dr. Edward O. Ernst, Bess Goodykontz, William G. Carr, Dr. M. O. Bousfield, Dr. Henry F. Helmholtz, Maria Pintado Rahn of the University of Puerto Rico, and Dr. Felix J. Underwood.

MALARIA CONTROL ACTIVITIES IN FLORIDA

FLORIDA has been designated a proving ground for the southeastern states in a national defense plan for malaria mosquito control activities. Leon County has been appointed for the trial defense malaria unit and U. S. Public Health officials in Atlanta, Ga., will collaborate. Dr. John E. Elmendorf, Jr., Pensacola, Director of the Bureau of Malaria Control, Florida State Board of Health, will supervise this program.

NATIONAL MATERNAL AND CHILD HEALTH COUNCIL SUSPENDS

BECAUSE of the lack of funds, it has been decided to wind up business and close the books of the National Maternal and Child Health Council (formerly National Council for Mothers and Babies), Washington, D. C., though the Council will continue as a corporation for the present, according to Mrs. Nathan Straus, Chairman of the Executive Committee.

Reporting that an effort to finance the Council through contributions from its constituent members had failed, Mrs. Straus indicated that support from foundations was not assured and that for the present at least member agencies will themselves have to coördinate maternal and child health activities, and to bring help to desperately needy areas in the United States without the benefit of the Council.

U. S. PUBLIC HEALTH SERVICE MOVES ITS OFFICES

DURING March the headquarters of the U. S. Public Health Service on Constitution Avenue, Washington, across from the Munitions and Navy Buildings, was vacated by the Service which is now quartered in the old Naval Hospital at 23rd and E Streets.

Into the vacated building has moved the High Command of the United Nations.

NEW OFFICERS OF THE CONNECTICUT PUBLIC HEALTH ASSOCIATION

AT its recent Annual Meeting the Connecticut Public Health Association elected the following new officers:

President—Paul H. Brown, M.D., Stamford, Conn.

President-elect—Alfred L. Burgdorf, M.D., Hartford, Conn.

Vice-President—M. L. Palmieri, M.D., Middletown, Conn.

Secretary-Treasurer—Clement F. Batelli, M.D., New Haven, Conn.

Representative to the Governing Council of the A.P.H.A.—Joseph I. Linde, M.D., New Haven, Conn.

Alternative Representative to the Governing Council of the A.P.H.A.—Millard Knowlton, M.D., Hartford, Conn.

AMERICAN PHYSIOTHERAPY ASSOCIATION

THE American Physiotherapy Association has announced a conference to be held at Lake Geneva, Wis., June 28 through July 3 at which all organizations interested in physiotherapy will be asked to map their common problems and share in their solution.

Don W. Gudakunst, M.D., Medical Director of the National Foundation for Infantile Paralysis, Inc., New York, N. Y., has been designated A.P.H.A. representative to attend this conference.

NEW HEALTH UNITS IN NEBRASKA

THE Nebraska State Department of Health has established 3 new health units in defense areas: Cass-Sarpy County; Douglas County, including the city of Omaha; and Dodge-Saunders County. These units are established in connection with either army or defense production, and the personnel consists of medical officer, engineer, sanitarian, and 6 nurses.

PERSONALS

Central States

PALMER O. EICHER, M.D., of Decatur, Ill., has been named Health Officer of Adams County.

CAREY P. MCCORD, M.D.,* of Detroit, Mich., has been elected to extramural lectureship on occupational diseases at the new School of Public Health of the University of Michigan, Ann Arbor.

LEONARD R. MARTI, B.S., M.Ed., formerly State Health Administrative Officer for the National Youth Administration in North Dakota, has been appointed Acting Director of the Division of Health Education for the North Dakota State Department of Health, during the leave of absence of WILLIAM ROEMMICH, B.S., M.S., who is attending school at the Massachusetts Institute of Technology.

LAURA K. MCCRORY, PH.B., who has been associate state director, Farm Security Administration for North Dakota, has been appointed Consultant Nutritionist of the North Dakota State Department of Health.

GEORGE F. MOENCH, M.D.,† of Marshall, has been appointed Director of the Calhoun County Health Department, Marshall, Mich., succeeding HUGH B. ROBINS, M.D., who is on leave for graduate work at the University of Michigan School of Hygiene and Public Health. Dr. Moench was formerly Director of the Delaware County Health Department, Delaware, Ohio.

JESSE E. NIXON, M.D., of Portland, Ind., has been named Health Officer of Jay County.

ROY OXENDALE, formerly Topeka representative of the United Press, has been appointed Director of a new unit established by the Kansas State Board of Health, Topeka Kans. This Division on Public Health Information plans to extend lay educational programs pertaining to exhibits, movies, pamphlets, news releases and radio programs on public health.

CHARLES F. PECTOL, M.D., of Spencer, Ind., has been named Health Officer of Owen County.

IRA E. PERRY, of North Manchester, Ind., has been reappointed as Health Officer of Wabash County.

WALLACE S. PETTY, M.D.,* formerly head of the Sioux City and Woodbury County, Ia., health units, has been appointed Director of Local Public Health Service for the State Department of Health, Lincoln, Neb. Dr. Petty recently completed a course in public health at the University of Minnesota, Minneapolis. He has been succeeded by DR. JOHN A. COWAN, who has been Acting Director of Public Health for Sioux City and Woodbury County.

ROLLA J. SHALE, M.D., M.S.P.H.,† Director of the Ontonagon-Baraga District Health Department, Ontonagon, Mich., has resigned to accept

* Fellow A.P.H.A.
† Member A.P.H.A.

a position as Director of the Hillsborough County Health Department, Tampa, Fla.

MARY SOULES, M.D., Maternal and Child Hygiene clinician, North Dakota State Department of Health, is pursuing postgraduate work at the Harvard School of Public Health.

HENRY G. STEINMETZ, M.D.,† recently Health Commissioner of Genesee County, Mich., has been appointed Assistant Director in the Bureau of Venereal Diseases of the Michigan State Department of Health, Lansing.

LARS W. SWITZER, M.D.,† of Cassopolis, Mich., Health Officer of Cass County, will serve as Health Officer until the return of LESLIE V. BURKETT, M.D.,† of Flint, in June.

ARTHUR W. THOMAS, M.D., of Columbus, Ohio, Chief of the Division of Child Hygiene, Ohio State Department of Health, has been appointed Chief of the subdivision of child hygiene in the Cleveland Department of Health. Dr. Thomas succeeds RUDOLPH J. OCHSNER, M.D., of Cleveland, who has retired after 30 years' service.

HAROLD B. TURNER, M.D., of Bloomfield, Ind., has been named Health Officer of Greene County.

NEAL B. WILKINSON, Draftsman for the North Dakota Water Conservation Commission, has taken over the position of Draftsman, Sanitary Engineering Division, North Dakota State Department of Health.

Eastern States

WILLIAM STANLEY APPLEGATE,† of Asbury Park, N. J., was recently elected President of the New Jersey Health Officers' Association, succeeding HAROLD W. HAGER, of Ocean City.

DONALD B. ARMSTRONG, M.D.,* Third Vice-president of the Metropolitan Life Insurance Company, New York, N. Y., in charge of Welfare Services for Policyholders, has been appointed a Senior Surgeon in the Reserve Corps of the U. S. Public Health Service.

LOUIS H. COHEN, M.D., of Norwich, Conn., has been appointed Assistant Clinical Professor of Psychiatry and Mental Hygiene at the School of Medicine, Yale University, New Haven.

MORRIS W. COWDEN, M.D., of Gerry, Chautauqua County, N. Y., was recently presented with a testimonial letter by EDWARD S. GODFREY, JR., M.D.,* State Health Commissioner, "in recognition of fifty years of faithful and continuous service as health officer."

GEORGE B. DAVIS, M.D.,† of Milford, Conn., has been appointed as the first full-time Health Officer of Milford.

JOHN H. MUELLER, PH.D.,† Associate Professor of Bacteriology and Immunology, has been named Professor of Bacteriology and Immunology at the Harvard Medical School, Boston, effective July 1. He will take charge of the Department at the Medical School and at the School of Public Health.

SHERMAN S. PINTO, M.D.,† has been named Supervisor of Industrial Hygiene of the State Department of Health, New Orleans, La. Dr. Pinto is a graduate of the University of Nebraska College of Medicine, and has for some time been associated with the Massachusetts State Division of Occupational Hygiene, Boston, Mass.

ROY M. SEIDEMAN, M.D., DR.P.H.,† who has been Deputy Commissioner with the Cattaraugus County Department of Health, Olean, N. Y., has been appointed District Medical Officer for Civilian Defense under

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* Fellow A.P.H.A.
† Member A.P.H.A.

the New York State Health Preparedness Commission, with offices in Rochester, N. Y.

RACHEL SPINNEY, a graduate in public health from the Massachusetts Institute of Technology and from the School of Public Health at the University of Michigan, has been appointed health education secretary of the Hartford Tuberculosis and Public Health Society, Hartford, Conn., succeeding HELEN MARTIKAINEN, who has resigned to enter the U. S. Public Health Service Staff.

DR. GEORGE S. STEVENSON, Medical Director of the National Committee for Mental Hygiene, has been elected President of the National Health Council, of New York, N. Y., for 1942. He succeeds KENDALL EMERSON, M.D.,* Managing Director of the National Tuberculosis Association, who becomes Vice-President and Chairman of the Executive Committee.

RUTH HARTLEY WEAVER, M.D.,* who has for several years been Registrar of Vital Statistics of Philadelphia, Pa., has been appointed Assistant Director of Health, succeeding the late Dr. Martha Tracy. Dr. Weaver has served as Epidemiologist of the City Department of Health and is Assistant Professor of Epidemiology and Vital Statistics at the Temple University School of Medicine, Philadelphia.

Southern States

ROSCOE P. KANDLE, M.D.,† of Monroe, La., has been appointed Director of the Calcasieu Parish Health Unit.

ELSA ORENT-KEILES, Sc.D.,† who recently has been connected with the department of biochemistry of the School of Hygiene and Public Health of the Johns Hopkins University, Baltimore, Md., is Assistant Chief of the Food and Nutrition Division of the Bureau of Home Economics, U. S. Department of Agriculture, and in charge of the Nutrition Research Laboratories, Beltsville Research Center, Maryland.

CARL V. REYNOLDS, M.D.,* of Raleigh, N. C., Secretary and State Health Officer of the North Carolina State Board of Health, was elected President of the State and Provincial Health Authorities of North America at their recent meeting in Washington, succeeding FREDERICK W. JACKSON, M.D.,† Deputy Minister of Health, Winnipeg, Man., Canada. Other officers are GREGOIRE F. AMYOT, M.D., D.P.H.,* Provincial Health Officer, Victoria, B. C., Canada, Vice President; and ALBERT J. CHESLEY, M.D.,* Secretary and Executive Officer, Minnesota Department of Health, Minneapolis, Minn., who was reëlected Secretary and Treasurer for his 18th term.

Western States

CALVIN L. LONGSTRETH, M.D., has been appointed Health Officer for Bellingham, Wash.

DEATHS

T. R. CROWDER, M.D.,* Director, Department of Sanitation and Surgery, Pullman Company, Chicago, Ill., died April 16.

SIR THOMAS OLIVER, British physician and author of many standard works on diseases afflicting industrial workers, died at Newcastle, England, on May 16, at the age of 89.

DR. ARTHUR PAUL WAKEFIELD, of Belmont, Mass., died February 6.

SHIRLEY W. WYNNE, M.D., New York City Health Commissioner from 1928 through 1933, died April 19, at the age of 59. He returned to private practice in 1934.

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† Member A.P.H.A.

CONFERENCES AND DATES

American Congress of Physical Therapy—21st Annual Scientific and Clinical Session. Hotel William Penn, Pittsburgh, Pa. September 9–12.

American Home Economics Association. Boston, Mass. June 21–24.

American Hospital Association. St. Louis, Mo. October 12–16.

American Library Association. Milwaukee, Wis. June 21–27.

American Medical Association—93rd Annual Meeting. Convention Hall, Atlantic City, N. J. June 8–12.

American Medical Women's Association. Atlantic City, N. J. June 6–7.

American Ophthalmological Society. Hot Springs, Va. June 1–3.

American Public Health Association—71st Annual Meeting. Headquarters, Municipal Auditorium, St. Louis, Mo. October 27–30.

American Public Works Association. Cleveland, Ohio. October 18–21.

American Society of Civil Engineers—Summer Meeting. Upper Mississippi. July.
Fall Meeting. New England. October.

American Society of Clinical Pathologists. Philadelphia, Pa. June 5–7.

American Therapeutic Society. Atlantic City, N. J. June 4–6.

American Water Works Association—
Annual Convention—Conference on Wartime Water Works Problems. The Stevens Hotel, Chicago, Ill. June 21–25.
Michigan Section — Park Place Hotel, Traverse City, Mich. September 9–11.
Rocky Mountain Section—Frontier Hotel, Cheyenne, Wyo. September 17–18.
Western Pennsylvania Section — Roosevelt Hotel, Pittsburgh, Pa. September 18.
Minnesota Section—Lowrey Hotel, St. Paul, Minn. September 24–26.
Four States Section — Benjamin Franklin Hotel, Philadelphia, Pa. October 7–9.
Southwest Section—Little Rock, Ark. October 12–15.
Kentucky-Tennessee Section—Irving Cobb Hotel, Paducah, Ky. October 19–21.
Missouri Valley Section—Coronado Hotel, St. Louis, Mo. October 22–24.
California Section—Hotel Oakland, Oakland, Calif. October 28–30.

Civil Service Assembly — Eastern Regional Conference. Albany, N. Y. June 5–6.
Annual Conference. St. Paul, Minn. October 1–3.

Federation of Sewage Works Association. Cleveland, Ohio. October 15–17.

Institute of Food Technologists. Minneapolis, Minn. June 15–17.

Michigan Public Health Association. Grand Rapids. November 11–13.

National Association of Public School Business Officials. Cleveland, Ohio. October 5–8.

National Association of Social Workers—Delegate Conference. October.

National Education Association. Denver, Colo. June 27–July 2.

National Gastroenterological Association. Biltmore Hotel, New York, N. Y. June 3–6.

National Institute for Traffic Training—5th Annual Institute. New Haven, Conn. June 15–26.

National Noise Abatement Week. May 31–June 6.

National Probation Association. Asheville, N. C. October 19–23.

National Recreation Association. Cincinnati, Ohio. September 28–October 2.

National Safety Council. Chicago, Ill. October 5–9.

New Mexico Public Health Association. Raton. October.

New York State Association of Milk Sanitarians—20th Annual Conference. DeWitt Clinton Hotel, Albany, N. Y. September 23–25.

New York State Association of School Physicians—Annual Meeting and Conference. Grand Union Hotel. Saratoga Springs, **N. Y. June 22.**

New York State Conference of Mayors and Other Municipal Officials. Syracuse, N. Y. June 8–10.

New York State Sewage Works Association—Spring Meeting. Hotel Ten Eyck, Albany, N. Y. June 5–6.

Special Libraries Association. Detroit, Mich. June 18–20.

Tennessee Public Health Association. Nashville, Tenn. September.

Canada

Canadian Medical Association. Jasper Park Lodge, Jasper Park, Alberta, Sask. June 15–19.

Canadian Public Health Association—31st Annual Meeting, in conjunction with annual conferences of the Ontario Health Officers Association and the Canadian Institute of Sanitary Inspectors (Ontario Branch). Royal York Hotel, Toronto, Ont. June 1–3.